

DDENLP

Generated by Doxygen 1.8.11

Contents

1	Documentation of the Toolbox DDENLP for robust steady state optimization of delayed systems.	1
1.1	Using this toolbox	1
1.2	Funding	1
2	Frequently Asked Questions	3
2.1	Convergence of Initialization	3
2.2	DDE-BIFTOOL	3
3	Hierarchical Index	5
3.1	Class Hierarchy	5
4	Class Index	7
4.1	Class List	7
5	File Index	9
5.1	File List	9
6	Class Documentation	17
6.1	DDE Class Reference	17
6.1.1	Detailed Description	18
6.1.2	Constructor & Destructor Documentation	18
6.1.2.1	DDE(in rhsHandle, in delays, in xNomGuess, in uncParam, in certOptParam)	18
6.1.3	Member Function Documentation	19
6.1.3.1	getHandles(in aDDE, in type)	19
6.1.4	Member Data Documentation	19
6.1.4.1	certOptParam	19

6.1.4.2	delays	19
6.1.4.3	foldManiHandle	19
6.1.4.4	foldNVHandle	19
6.1.4.5	hopfManiHandle	19
6.1.4.6	hopfNVHandle	20
6.1.4.7	modfoldManiHandle	20
6.1.4.8	modfoldNVHandle	20
6.1.4.9	modhopfManiHandle	20
6.1.4.10	modhopfNVHandle	20
6.1.4.11	ntau	20
6.1.4.12	rhs	20
6.1.4.13	uncParam	20
6.2	DDENLP Class Reference	21
6.2.1	Detailed Description	24
6.2.2	Constructor & Destructor Documentation	24
6.2.2.1	DDENLP(in aCostFunction, in aDDE, in xNomGuess, in stateLB, in stateUB, in uncertParamLB, in uncertParamUB, in certOptParamLB, in certOptParamUB, in varargin)	24
6.2.3	Member Function Documentation	24
6.2.3.1	addNVCon(in aDDENLP, in type, in augSysHandle, in nVSysHandle, in xGuess, in alphaGuess, in pGuess, in varargin)	24
6.2.3.2	checkConstraints(in aDDENLP)	25
6.2.3.3	checkStabilityAtRandom(in aDDENLP, in baseForNumberOfPoints, in seedForRandomNumbers, in varargin)	25
6.2.3.4	checkStabilityAtVertices(in aDDENLP, in indexlist, in varargin)	25
6.2.3.5	checkStabilityPoint(in aDDENLP, in point)	26
6.2.3.6	compareConnectionNV(in aDDENLP, in indexCrit)	26
6.2.3.7	concatConstraints(in aDDENLP, in otherEq, in otherIneq, in varargin)	26
6.2.3.8	concatInitPoints(in aDDENLP)	26
6.2.3.9	ddesd(in aDDENLP, in point, in history, in tspan, in options)	26
6.2.3.10	deconstructInit(in aDDENLP, in type, in varargin)	27
6.2.3.11	deconstructOptimum(in aDDENLP)	27

6.2.3.12	evaluateStatus(in aDDENLP)	27
6.2.3.13	findManifoldPointOnLine(in ignoredArg, in type, in manifoldHandle, in point1, in point2, in maxEig)	28
6.2.3.14	initializeStSt(in aDDENLP)	28
6.2.3.15	initializeStStRot(in aDDENLP)	28
6.2.3.16	initNVCons(in aDDENLP, in nVflipmode, in varargin)	28
6.2.3.17	moveAwayFromManifolds(in aDDENLP, in steppingFactor, in distanceFactor, in)	28
6.2.3.18	runOptim(in aDDENLP, in userDefinedOptions, in Aineq, in bineq, in varargin)	29
6.2.3.19	runOptimAddingNewManifolds(in aDDENLP, in nIterBetweenStabChecks)	29
6.2.3.20	runOptimMultipleInitPoints(in aDDENLP, in furtherInput, in varargin)	29
6.2.3.21	runOptimWithStabChecks(in aDDENLP, in nIterBetweenStabChecks)	29
6.2.4	Member Data Documentation	30
6.2.4.1	aCostFunction	30
6.2.4.2	algVarIndex	30
6.2.4.3	allNLEqConstraints	30
6.2.4.4	allNLIneqConstraints	30
6.2.4.5	allowedEigsInClosedRightHP	30
6.2.4.6	exitflag	30
6.2.4.7	fixedUncertParamIndex	30
6.2.4.8	grad	31
6.2.4.9	hessian	31
6.2.4.10	initVal	31
6.2.4.11	lambda	31
6.2.4.12	lowerBoxCons	31
6.2.4.13	maxAllowedRealPart	31
6.2.4.14	minDist	31
6.2.4.15	nAlpha	31
6.2.4.16	nlcon	31
6.2.4.17	nP	31
6.2.4.18	numMinEig	32
6.2.4.19	NVCon	32

6.2.4.20	<code>nX</code>	32
6.2.4.21	<code>occupiedEqs</code>	32
6.2.4.22	<code>occupiedIneqs</code>	32
6.2.4.23	<code>occupiedVars</code>	32
6.2.4.24	<code>optimOutput</code>	32
6.2.4.25	<code>optimVal</code>	32
6.2.4.26	<code>optionsInitEqCons</code>	32
6.2.4.27	<code>optionsInitOptim</code>	32
6.2.4.28	<code>optionsMainOptim</code>	33
6.2.4.29	<code>optJ</code>	33
6.2.4.30	<code>problemDDE</code>	33
6.2.4.31	<code>status</code>	33
6.2.4.32	<code>stStCon</code>	33
6.2.4.33	<code>upperBoxCons</code>	33
6.2.4.34	<code>useLHS</code>	33
6.2.4.35	<code>vars</code>	33
6.2.4.36	<code>verifyStabPoints</code>	33
6.3	EqualityConstraint Class Reference	34
6.3.1	Detailed Description	35
6.3.2	Constructor & Destructor Documentation	35
6.3.2.1	EqualityConstraint(in conFunHandle, in nEqs, in vars, in eqOffset)	35
6.3.3	Member Function Documentation	35
6.3.3.1	shiftIndex(in anEqCon, in eqShift, in varShift)	35
6.3.4	Member Data Documentation	35
6.3.4.1	<code>conFun</code>	35
6.3.4.2	<code>eqIndex</code>	36
6.3.4.3	<code>nEqs</code>	36
6.3.4.4	<code>status</code>	36
6.3.4.5	<code>vars</code>	36
6.4	handle Class Reference	36

6.5	ManifoldSlice Class Reference	37
6.5.1	Detailed Description	38
6.5.2	Constructor & Destructor Documentation	38
6.5.2.1	ManifoldSlice(in aNVCon, in continParamsInd, in varargin)	38
6.5.3	Member Function Documentation	39
6.5.3.1	maniContin2DbothDirections(in aManifoldSlice, in n)	39
6.5.3.2	manifoldContinuation2D(in aManifoldSlice, in direction)	39
6.5.3.3	plot(in aManifoldSlice)	39
6.5.3.4	quiver(in aManifoldSlice)	39
6.5.4	Member Data Documentation	39
6.5.4.1	debugFlag	39
6.5.4.2	eqAugSys	40
6.5.4.3	eqNVSys	40
6.5.4.4	freeParamIndices	40
6.5.4.5	initStepLength	40
6.5.4.6	lowerBoxCons	40
6.5.4.7	maxStepLength	40
6.5.4.8	nManiPoints	40
6.5.4.9	point	40
6.5.4.10	showStepsFlag	40
6.5.4.11	stepLength	40
6.5.4.12	upperBoxCons	41
6.6	NVConstraint Class Reference	41
6.6.1	Detailed Description	42
6.6.2	Constructor & Destructor Documentation	42
6.6.2.1	NVConstraint(in aDDENLP, in type, in augSysHandle, in nVSysHandle, in nVvars)	42
6.6.3	Member Function Documentation	43
6.6.3.1	checkSolution(in aNVCon)	43
6.6.3.2	findClosestCriticalPoint(in aNVCon, in alphaNom)	43
6.6.3.3	findConnection(in aNVCon, in alphaNom)	43

6.6.3.4	findEigVector(in aNVCon, in aVarCollection)	44
6.6.3.5	findManifoldPoint(in aNVCon, in aVarCollection)	44
6.6.3.6	findNormalVector(in aNVCon, in alphaNom, in directionMode, in varargin)	44
6.6.3.7	prepareInitialGuess(in aNVCon, in aVarCollection)	45
6.6.3.8	shiftIndex(in anEqCon, in eqShift, in varShift)	45
6.6.4	Member Data Documentation	45
6.6.4.1	conFun	45
6.6.4.2	eqAugSys	45
6.6.4.3	eqConnect	45
6.6.4.4	eqIndex	46
6.6.4.5	eqNVSys	46
6.6.4.6	inequalities	46
6.6.4.7	inequalityIndex	46
6.6.4.8	nEqs	46
6.6.4.9	numMinEig	46
6.6.4.10	nVarAugSys	46
6.6.4.11	nVarNVSys	46
6.6.4.12	optionsEqConsInit	46
6.6.4.13	optionsInitOptim	46
6.6.4.14	problemDDE	47
6.6.4.15	status	47
6.6.4.16	type	47
6.6.4.17	vars	47
6.7	StStConstraint Class Reference	47
6.7.1	Detailed Description	48
6.7.2	Constructor & Destructor Documentation	48
6.7.2.1	StStConstraint(in aDDE, in vars)	48
6.7.3	Member Function Documentation	49
6.7.3.1	initStStConstraint(in aStStCon, in options)	49
6.7.3.2	initStStConstraintRot(in aStStCon, in options)	49

6.7.3.3	shiftIndex(in anEqCon, in eqShift, in varShift)	49
6.7.4	Member Data Documentation	50
6.7.4.1	conFun	50
6.7.4.2	eqIndex	50
6.7.4.3	nEqs	50
6.7.4.4	status	50
6.7.4.5	vars	50
6.8	VariableVector Class Reference	50
6.8.1	Detailed Description	51
6.8.2	Constructor & Destructor Documentation	51
6.8.2.1	VariableVector(in values, in offset, in nameInput)	51
6.8.3	Member Function Documentation	52
6.8.3.1	copy(in aVariableVec)	52
6.8.3.2	shiftIndex(in aVariableVec, in shift)	52
6.8.4	Member Data Documentation	52
6.8.4.1	index	52
6.8.4.2	names	52
6.8.4.3	nVar	52
6.8.4.4	values	53
7	File Documentation	55
7.1	@DDE/DDE.m File Reference	55
7.1.1	Detailed Description	55
7.2	@DDENLP/DDENLP.m File Reference	55
7.3	@EqualityConstraint/EqualityConstraint.m File Reference	55
7.3.1	Detailed Description	56
7.4	@ManifoldSlice/ManifoldSlice.m File Reference	56
7.5	@NVConstraint/NVConstraint.m File Reference	56
7.5.1	Detailed Description	56
7.6	@StStConstraint/StStConstraint.m File Reference	57
7.6.1	Detailed Description	57

7.7	@VariableVector/VariableVector.m File Reference	57
7.7.1	Detailed Description	57
7.8	checkStability.m File Reference	58
7.8.1	Function Documentation	58
7.8.1.1	checkStability(in funcs, in parameter, in x0, in numMinEig, in freeParams)	58
7.9	circle.m File Reference	58
7.9.1	Function Documentation	58
7.9.1.1	circle(in radius, in x, in y)	58
7.10	demo/optimPopulationTestManifoldSlice.m File Reference	58
7.11	demo/populationModelModFoldMani.c File Reference	58
7.12	ExampleApplications/TDS2016Population/populationModelModFoldMani.c File Reference	58
7.13	demo/populationModelModFoldNV.c File Reference	58
7.14	ExampleApplications/TDS2016Population/populationModelModFoldNV.c File Reference	58
7.15	ExampleApplications/CDC2016SupplyChain/supplyChainDelays.m File Reference	58
7.15.1	Function Documentation	59
7.15.1.1	supplyChainDelays(in xx, in alpha, in ignoredArg)	59
7.16	ExampleApplications/CDC2016SupplyChain/supplyChainHopfMani.c File Reference	59
7.17	ExampleApplications/CDC2016SupplyChain/supplyChainHopfNV.c File Reference	59
7.18	ExampleApplications/CDC2016SupplyChain/supplyChainModel.m File Reference	59
7.18.1	Function Documentation	59
7.18.1.1	supplyChainModel(in x, in xtau, in alpha, in ignoredArg)	59
7.19	ExampleApplications/CDC2016SupplyChain/supplyChainOptim.m File Reference	59
7.20	ExampleApplications/CDC2016SupplyChain/supplyChainOptimAcceptingTwoEigsInRightHP.m File Reference	59
7.21	ExampleApplications/CoupledCSTRs/allNCSTROptim.m File Reference	59
7.22	ExampleApplications/CoupledCSTRs/defineROIWeightingNCSTR.m File Reference	59
7.23	ExampleApplications/CoupledCSTRs/NCSTRdelays.m File Reference	59
7.23.1	Function Documentation	60
7.23.1.1	NCSTRdelays(in k, in ignoredArg, in p)	60
7.24	ExampleApplications/CoupledCSTRs/oneCSTRwithFlashSep/oneCSTRoneFlashSepDDE.c File Reference	60

7.25 ExampleApplications/CoupledCSTRs/oneCSTRwithFlashSep/oneCSTRoneFlashSepHopfMani.c File Reference	60
7.26 ExampleApplications/CoupledCSTRs/oneCSTRwithFlashSep/oneCSTRoneFlashSepHopfMani↔ NV.c File Reference	60
7.27 ExampleApplications/CoupledCSTRs/oneCSTRwithFlashSep/oneCSTROptim.m File Reference . .	60
7.27.1 Function Documentation	60
7.27.1.1 dbstack()	60
7.28 ExampleApplications/CoupledCSTRs/oneCSTRwithFlashSep/returnOnInvest1.m File Reference .	60
7.28.1 Function Documentation	60
7.28.1.1 returnOnInvest1(in x)	60
7.29 ExampleApplications/CoupledCSTRs/reactorCost.m File Reference	60
7.29.1 Function Documentation	61
7.29.1.1 reactorCost(in V)	61
7.30 ExampleApplications/CoupledCSTRs/setNCSTRBoundaries.m File Reference	61
7.31 ExampleApplications/CoupledCSTRs/threeCSTRwithFlashSep/returnOnInvest3.m File Reference .	61
7.31.1 Function Documentation	61
7.31.1.1 returnOnInvest3(in x)	61
7.32 ExampleApplications/CoupledCSTRs/threeCSTRwithFlashSep/threeCSTRoneFlashSepDDE.c File Reference	61
7.33 ExampleApplications/CoupledCSTRs/threeCSTRwithFlashSep/threeCSTRoneFlashSepFold↔ Mani.c File Reference	61
7.34 ExampleApplications/CoupledCSTRs/threeCSTRwithFlashSep/threeCSTRoneFlashSepFold↔ ManiNV.c File Reference	61
7.35 ExampleApplications/CoupledCSTRs/threeCSTRwithFlashSep/threeCSTRoneFlashSepHopf↔ Mani.c File Reference	61
7.36 ExampleApplications/CoupledCSTRs/threeCSTRwithFlashSep/threeCSTRoneFlashSepHopf↔ ManiNV.c File Reference	61
7.37 ExampleApplications/CoupledCSTRs/threeCSTRwithFlashSep/threeCSTROptim.m File Reference	61
7.37.1 Function Documentation	62
7.37.1.1 dbstack()	62
7.38 ExampleApplications/CoupledCSTRs/threeCSTRwithFlashSep/threeCSTRStab.m File Reference .	62
7.39 ExampleApplications/CoupledCSTRs/threeCSTRwithFlashSep/tmp.m File Reference	62
7.40 ExampleApplications/CoupledCSTRs/twoCSTRwithFlashSep/returnOnInvest2.m File Reference . .	62

7.40.1	Function Documentation	62
7.40.1.1	returnOnInvest2(in x)	62
7.41	ExampleApplications/CoupledCSTRs/twoCSTRwithFlashSep/twoCSTRoneFlashSepDDE.c File Reference	62
7.42	ExampleApplications/CoupledCSTRs/twoCSTRwithFlashSep/twoCSTRoneFlashSepHopfMani.c File Reference	62
7.43	ExampleApplications/CoupledCSTRs/twoCSTRwithFlashSep/twoCSTRoneFlashSepHopfManiNV.c File Reference	62
7.44	ExampleApplications/CoupledCSTRs/twoCSTRwithFlashSep/twoCSTROptim.m File Reference	62
7.44.1	Function Documentation	63
7.44.1.1	dbstack()	63
7.45	ExampleApplications/CoupledLasers/10L_symm/DDE_10L_symm.c File Reference	63
7.46	ExampleApplications/CoupledLasers/10L_symm/Mod_Fold_10L_symm.c File Reference	63
7.47	ExampleApplications/CoupledLasers/10L_symm/NV_Mod_Fold_10L_symm.c File Reference	63
7.48	ExampleApplications/CoupledLasers/10L_symm/optim_10L_symm_ausnutzung_symm.m File Reference	63
7.49	ExampleApplications/CoupledLasers/2L_symm/Laser_DDE_2L.c File Reference	63
7.50	ExampleApplications/CoupledLasers/2L_symmOldModel/Laser_DDE_2L.c File Reference	63
7.51	ExampleApplications/CoupledLasers/2L_symmOldParam/Laser_DDE_2L.c File Reference	63
7.52	ExampleApplications/CoupledLasers/2L_symm/maniPlotter2L.m File Reference	63
7.53	ExampleApplications/CoupledLasers/2L_symmOldModel/maniPlotter2L.m File Reference	63
7.54	ExampleApplications/CoupledLasers/2L_symmOldParam/maniPlotter2L.m File Reference	63
7.55	ExampleApplications/CoupledLasers/2L_symm/Mod_Fold_2L.c File Reference	63
7.56	ExampleApplications/CoupledLasers/2L_symmOldModel/Mod_Fold_2L.c File Reference	63
7.57	ExampleApplications/CoupledLasers/2L_symmOldParam/Mod_Fold_2L.c File Reference	64
7.58	ExampleApplications/CoupledLasers/2L_symm/NV_Mod_Fold_2L.c File Reference	64
7.59	ExampleApplications/CoupledLasers/2L_symmOldModel/NV_Mod_Fold_2L.c File Reference	64
7.60	ExampleApplications/CoupledLasers/2L_symmOldParam/NV_Mod_Fold_2L.c File Reference	64
7.61	ExampleApplications/CoupledLasers/2L_symm/optim2LRobSync.m File Reference	64
7.62	ExampleApplications/CoupledLasers/2L_symmOldModel/optim2LRobSync.m File Reference	64
7.63	ExampleApplications/CoupledLasers/2L_symmOldParam/optim2LRobSync.m File Reference	64
7.64	ExampleApplications/CoupledLasers/2L_symm/optim2LRobSyncRobPlot.m File Reference	64

7.65	ExampleApplications/CoupledLasers/2L_symmOldModel/optim2LRobSyncRobPlot.m File Reference	64
7.66	ExampleApplications/CoupledLasers/2L_symmOldParam/optim2LRobSyncRobPlot.m File Reference	64
7.67	ExampleApplications/CoupledLasers/2L_symm/optim2LSync.m File Reference	64
7.68	ExampleApplications/CoupledLasers/2L_symmOldModel/optim2LSync.m File Reference	64
7.69	ExampleApplications/CoupledLasers/2L_symmOldParam/optim2LSync.m File Reference	64
7.70	ExampleApplications/CoupledLasers/2L_symm/plotCostFun.m File Reference	65
7.71	ExampleApplications/CoupledLasers/2L_symmOldModel/plotCostFun.m File Reference	65
7.72	ExampleApplications/CoupledLasers/2L_symmOldParam/plotCostFun.m File Reference	65
7.73	ExampleApplications/CoupledLasers/3L_symm/plotCostFun.m File Reference	65
7.74	ExampleApplications/CoupledLasers/3L_symmOldParam/plotCostFun.m File Reference	65
7.75	ExampleApplications/CoupledLasers/2L_symm/unstab_2L_omega_in_p_2_Con.m File Reference .	65
7.76	ExampleApplications/CoupledLasers/2L_symmOldModel/unstab_2L_omega_in_p_2_Con.m File Reference	65
7.77	ExampleApplications/CoupledLasers/2L_symmOldParam/unstab_2L_omega_in_p_2_Con.m File Reference	65
7.78	ExampleApplications/CoupledLasers/3L_asymm/Bifurkationen_3L_asymm_fsolve_Schnittgeraden_↔_neu.m File Reference	65
7.79	ExampleApplications/CoupledLasers/3L_asymmOldParam/Bifurkationen_3L_asymm_fsolve_↔_Schnittgeraden_neu.m File Reference	65
7.80	ExampleApplications/CoupledLasers/3L_asymm/createParamSpacePlots.m File Reference	65
7.81	ExampleApplications/CoupledLasers/3L_asymmOldParam/createParamSpacePlots.m File Reference	65
7.82	ExampleApplications/CoupledLasers/3L_symm/createParamSpacePlots.m File Reference	65
7.83	ExampleApplications/CoupledLasers/3L_symmOldParam/createParamSpacePlots.m File Reference	66
7.84	ExampleApplications/CoupledLasers/3L_asymm/DDE_3L_SETUP_1.c File Reference	66
7.85	ExampleApplications/CoupledLasers/3L_asymmOldParam/DDE_3L_SETUP_1.c File Reference .	66
7.86	ExampleApplications/CoupledLasers/3L_asymm/Mod_Fold_3L_SETUP_1.c File Reference	66
7.87	ExampleApplications/CoupledLasers/3L_asymmOldParam/Mod_Fold_3L_SETUP_1.c File Reference	66
7.88	ExampleApplications/CoupledLasers/3L_asymm/Mod_Hopf_3L_SETUP_1.c File Reference	66
7.89	ExampleApplications/CoupledLasers/3L_asymmOldParam/Mod_Hopf_3L_SETUP_1.c File Reference	66
7.90	ExampleApplications/CoupledLasers/3L_asymm/Neue_Kostenfunktion/optim_3L_Setup1_↔_Ausarbeitung.m File Reference	66
7.91	ExampleApplications/CoupledLasers/3L_asymm/optim_3L_Setup1_Ausarbeitung.m File Reference	66

7.92 ExampleApplications/CoupledLasers/3L_asymmOldParam/optim_3L_Setup1_Ausarbeitung.m File Reference	66
7.93 ExampleApplications/CoupledLasers/3L_asymm/NV_Mod_Fold_3L_SETUP_1.c File Reference	66
7.94 ExampleApplications/CoupledLasers/3L_asymmOldParam/NV_Mod_Fold_3L_SETUP_1.c File Reference	66
7.95 ExampleApplications/CoupledLasers/3L_asymm/NV_Mod_Hopf_3L_SETUP_1.c File Reference	67
7.96 ExampleApplications/CoupledLasers/3L_asymmOldParam/NV_Mod_Hopf_3L_SETUP_1.c File Reference	67
7.97 ExampleApplications/CoupledLasers/3L_asymm/optim_3L_Setup1_find_Start.m File Reference	67
7.98 ExampleApplications/CoupledLasers/3L_asymmOldParam/optim_3L_Setup1_find_Start.m File Reference	67
7.99 ExampleApplications/CoupledLasers/3L_asymm/prepareManifoldFig.m File Reference	67
7.100 ExampleApplications/CoupledLasers/3L_asymmOldParam/prepareManifoldFig.m File Reference	67
7.101 ExampleApplications/CoupledLasers/3L_asymm/Pump_3L_fixed_K_fsolve_Guete.m File Reference	67
7.102 ExampleApplications/CoupledLasers/3L_asymmOldParam/Pump_3L_fixed_K_fsolve_Guete.m File Reference	67
7.103 ExampleApplications/CoupledLasers/3L_asymm/Syncmanifold_3L_Setup1_fkt.m File Reference	67
7.103.1 Function Documentation	67
7.103.1.1 Syncmanifold_3L_Setup1_fkt(in var, in pump, in omega)	67
7.104 ExampleApplications/CoupledLasers/3L_asymmOldParam/Syncmanifold_3L_Setup1_fkt.m File Reference	67
7.104.1 Function Documentation	68
7.104.1.1 Syncmanifold_3L_Setup1_fkt(in var, in pump, in omega)	68
7.105 ExampleApplications/CoupledLasers/3L_asymmOldParam/optim_3L_Setup1_Ausarbeitung_incl↔_plot.m File Reference	68
7.106 ExampleApplications/CoupledLasers/3L_symm/Bifurkationen_3L_symm_fsolve_Schnittgeraden.m File Reference	68
7.107 ExampleApplications/CoupledLasers/3L_symmOldParam/Bifurkationen_3L_symm_fsolve_↔_Schnittgeraden.m File Reference	68
7.108 ExampleApplications/CoupledLasers/3L_symm/DDE_3L_symm.c File Reference	68
7.109 ExampleApplications/CoupledLasers/3L_symmOldParam/DDE_3L_symm.c File Reference	68
7.110 ExampleApplications/CoupledLasers/3L_symm/Mod_Fold_3L_symm.c File Reference	68
7.111 ExampleApplications/CoupledLasers/3L_symmOldParam/Mod_Fold_3L_symm.c File Reference	68
7.112 ExampleApplications/CoupledLasers/3L_symm/NV_Mod_Fold_3L_symm.c File Reference	68

7.113ExampleApplications/CoupledLasers/3L_symmOldParam/NV_Mod_Fold_3L_symm.c File Reference	68
7.114ExampleApplications/CoupledLasers/3L_symm/optim_3L_symm.m File Reference	68
7.115ExampleApplications/CoupledLasers/3L_symmOldParam/optim_3L_symm.m File Reference . . .	68
7.116ExampleApplications/CoupledLasers/3L_symm/Pump_3L_fsolve_Guete.m File Reference	68
7.117ExampleApplications/CoupledLasers/3L_symmOldParam/Pump_3L_fsolve_Guete.m File Reference	69
7.118ExampleApplications/CoupledLasers/3L_symm/Syncmanifold_3L_fkt.m File Reference	69
7.118.1 Function Documentation	69
7.118.1.1 Syncmanifold_3L_fkt(in var, in pump)	69
7.119ExampleApplications/CoupledLasers/3L_symmOldParam/Syncmanifold_3L_fkt.m File Reference .	69
7.119.1 Function Documentation	69
7.119.1.1 Syncmanifold_3L_fkt(in var, in pump)	69
7.120ExampleApplications/DiffLaser/CodeGeneration/diff11LaserDDE.c File Reference	69
7.121ExampleApplications/DiffLaser/CodeGeneration/diff11LaserDelays.c File Reference	69
7.122ExampleApplications/DiffLaser/CodeGeneration/diff11LaserHopfManifold.c File Reference	69
7.123ExampleApplications/DiffLaser/CodeGeneration/diff11LaserHopfNV.c File Reference	69
7.124ExampleApplications/DiffLaser/CodeGeneration/diff21LaserDDE.c File Reference	69
7.125ExampleApplications/DiffLaser/Diff21/Backup/diff21LaserDDE.c File Reference	70
7.126ExampleApplications/DiffLaser/Diff21/diff21LaserDDE.c File Reference	70
7.127ExampleApplications/DiffLaser/CodeGeneration/diff21LaserDelays.c File Reference	70
7.128ExampleApplications/DiffLaser/CodeGeneration/diff21LaserHopfManifold.c File Reference	70
7.129ExampleApplications/DiffLaser/CodeGeneration/diff21LaserHopfNV.c File Reference	70
7.130ExampleApplications/DiffLaser/CodeGeneration/diff21LaserModFoldManifold.c File Reference . . .	70
7.131ExampleApplications/DiffLaser/CodeGeneration/diff21LaserModFoldNV.c File Reference	70
7.132ExampleApplications/DiffLaser/CodeGeneration/diff21LaserModHopfManifold.c File Reference . .	70
7.133ExampleApplications/DiffLaser/CodeGeneration/diff21LaserModHopfNV.c File Reference	70
7.134ExampleApplications/DiffLaser/CodeGeneration/diff31LaserDDE.c File Reference	70
7.135ExampleApplications/DiffLaser/CodeGeneration/diff31LaserDelays.c File Reference	70
7.136ExampleApplications/DiffLaser/CodeGeneration/diff31LaserHopfManifold.c File Reference	70
7.137ExampleApplications/DiffLaser/CodeGeneration/diff31LaserHopfNV.c File Reference	70
7.138ExampleApplications/DiffLaser/CodeGeneration/diff41LaserDDE.c File Reference	71

7.139ExampleApplications/DiffLaser/CodeGeneration/diff41LaserDelays.c File Reference	71
7.140ExampleApplications/DiffLaser/CodeGeneration/diff41LaserHopfManifold.c File Reference	71
7.141 ExampleApplications/DiffLaser/CodeGeneration/diff41LaserHopfNV.c File Reference	71
7.142ExampleApplications/DiffLaser/CodeGeneration/vonJens/DDE_1L_omega_in_p.c File Reference	71
7.143ExampleApplications/DiffLaser/CodeGeneration/vonJens/Mod_Fold_1L.c File Reference	71
7.144ExampleApplications/DiffLaser/CodeGeneration/vonJens/NV_Mod_Fold_1L.c File Reference	71
7.145ExampleApplications/DiffLaser/CompareDiskretisations.m File Reference	71
7.146ExampleApplications/DiffLaser/CompareResults.m File Reference	71
7.147ExampleApplications/DiffLaser/continueHopfDiffLaserN.m File Reference	71
7.148ExampleApplications/DiffLaser/Diff11/backup/diff11Laser2HopfManifold.c File Reference	71
7.149ExampleApplications/DiffLaser/Diff11/diff11Laser2HopfManifold.c File Reference	71
7.150ExampleApplications/DiffLaser/Diff11/backup/diff11Laser2HopfNV.c File Reference	71
7.151 ExampleApplications/DiffLaser/Diff11/diff11Laser2HopfNV.c File Reference	71
7.152ExampleApplications/DiffLaser/Diff11/diff11Laser2DDE.c File Reference	72
7.153ExampleApplications/DiffLaser/Diff11/diff11Laser2Delays.c File Reference	72
7.154ExampleApplications/DiffLaser/Diff11/findHopf.m File Reference	72
7.155ExampleApplications/DiffLaser/Diff21/findHopf.m File Reference	72
7.156ExampleApplications/DiffLaser/Diff31/findHopf.m File Reference	72
7.157ExampleApplications/DiffLaser/Diff41/findHopf.m File Reference	72
7.158ExampleApplications/DiffLaser/Diff11/findHopfFromCrit.m File Reference	72
7.159ExampleApplications/DiffLaser/Diff21/findHopfFromCrit.m File Reference	72
7.160ExampleApplications/DiffLaser/Diff31/findHopfFromCrit.m File Reference	72
7.161 ExampleApplications/DiffLaser/Diff41/findHopfFromCrit.m File Reference	72
7.162ExampleApplications/DiffLaser/Diff11/optimdiff11Laser.m File Reference	72
7.163ExampleApplications/DiffLaser/Diff11/optimdiff11LaserIntensity.m File Reference	72
7.164ExampleApplications/DiffLaser/Diff11/optimdiffNLaser.m File Reference	72
7.165ExampleApplications/DiffLaser/Diff21/Backup/diff21Laser2DDE.c File Reference	72
7.166ExampleApplications/DiffLaser/Diff21/diff21Laser2DDE.c File Reference	72
7.167ExampleApplications/DiffLaser/Diff21/Backup/diff21Laser2Delays.c File Reference	72
7.168ExampleApplications/DiffLaser/Diff21/diff21Laser2Delays.c File Reference	72

7.169ExampleApplications/DiffLaser/Diff21/Backup/diff21Laser2HopfEig.c File Reference	73
7.170ExampleApplications/DiffLaser/Diff21/diff21Laser2HopfEig.c File Reference	73
7.171ExampleApplications/DiffLaser/Diff21/Backup/diff21Laser2HopfManifold.c File Reference	73
7.172ExampleApplications/DiffLaser/Diff21/diff21Laser2HopfManifold.c File Reference	73
7.173ExampleApplications/DiffLaser/Diff21/Backup/diff21Laser2HopfNV.c File Reference	73
7.174ExampleApplications/DiffLaser/Diff21/diff21Laser2HopfNV.c File Reference	73
7.175ExampleApplications/DiffLaser/Diff21/Backup/diff21Laser2ModFoldManifold.c File Reference	73
7.176ExampleApplications/DiffLaser/Diff21/diff21Laser2ModFoldManifold.c File Reference	73
7.177ExampleApplications/DiffLaser/Diff21/Backup/diff21Laser2ModFoldNV.c File Reference	73
7.178ExampleApplications/DiffLaser/Diff21/diff21Laser2ModFoldNV.c File Reference	73
7.179ExampleApplications/DiffLaser/Diff21/Backup/diff21Laser2ModHopfManifold.c File Reference	73
7.180ExampleApplications/DiffLaser/Diff21/diff21Laser2ModHopfManifold.c File Reference	73
7.181ExampleApplications/DiffLaser/Diff21/Backup/diff21Laser2ModHopfNV.c File Reference	73
7.182ExampleApplications/DiffLaser/Diff21/diff21Laser2ModHopfNV.c File Reference	74
7.183ExampleApplications/DiffLaser/Diff21/createFigure.m File Reference	74
7.184ExampleApplications/DiffLaser/Diff21/optimdiff21Laser.m File Reference	74
7.185ExampleApplications/DiffLaser/Diff21/optimdiff21LaserIntensity.m File Reference	74
7.186ExampleApplications/DiffLaser/Diff31/checkJacRank.m File Reference	74
7.187ExampleApplications/DiffLaser/Diff31/diff31Laser2DDE.c File Reference	74
7.188ExampleApplications/DiffLaser/Diff31/diff31Laser2Delays.c File Reference	74
7.189ExampleApplications/DiffLaser/Diff31/diff31Laser2HopfManifold.c File Reference	74
7.190ExampleApplications/DiffLaser/Diff31/diff31Laser2HopfNV.c File Reference	74
7.191ExampleApplications/DiffLaser/Diff31/diff31Laser3DDE.c File Reference	74
7.192ExampleApplications/DiffLaser/Diff31/initdiff31LaserIntensity.m File Reference	74
7.193ExampleApplications/DiffLaser/Diff31/optimdiff31Laser.m File Reference	74
7.194ExampleApplications/DiffLaser/Diff31/optimdiff31LaserIntensity.m File Reference	74
7.195ExampleApplications/DiffLaser/Diff31/optimdiff31LaserIntensityNonRob.m File Reference	74
7.196ExampleApplications/DiffLaser/Diff31/optimdiff31LaserIntensityUnStab.m File Reference	74
7.197ExampleApplications/DiffLaser/Diff31/TestJacobianRank.m File Reference	74
7.198ExampleApplications/DiffLaser/Diff41/diff41Laser2DDE.c File Reference	75

7.199ExampleApplications/DiffLaser/Diff41/diff41Laser2Delays.c File Reference	75
7.200ExampleApplications/DiffLaser/Diff41/diff41Laser2HopfManifold.c File Reference	75
7.201ExampleApplications/DiffLaser/Diff41/diff41Laser2HopfNV.c File Reference	75
7.202ExampleApplications/DiffLaser/Diff41/optimdiff41Laser.m File Reference	75
7.203ExampleApplications/DiffLaser/Diff41/optimdiff41LaserIntensity.m File Reference	75
7.204ExampleApplications/DiffLaser/Diff51/diff51Laser2DDE.c File Reference	75
7.205ExampleApplications/DiffLaser/Diff51/diff51Laser2HopfManifold.c File Reference	75
7.206ExampleApplications/DiffLaser/Diff51/diff51Laser2HopfNV.c File Reference	75
7.207ExampleApplications/DiffLaser/Diff51/optimdiff51Laser.m File Reference	75
7.208ExampleApplications/DiffLaser/Diff61/diff61Laser2DDE.c File Reference	75
7.209ExampleApplications/DiffLaser/Diff71/diff71Laser2DDE.c File Reference	75
7.210ExampleApplications/DiffLaser/Diff81/diff81Laser2DDE.c File Reference	75
7.211ExampleApplications/DiffLaser/diffLaser11Optim.m File Reference	75
7.212ExampleApplications/DiffLaser/diffLaser11Optim2.m File Reference	75
7.213ExampleApplications/DiffLaser/diffLaser21Optim2.m File Reference	75
7.214ExampleApplications/DiffLaser/diffLaser31Optim2.m File Reference	75
7.215ExampleApplications/DiffLaser/diffLaser61Optim2.m File Reference	76
7.216ExampleApplications/DiffLaser/diffLaserCostPlot.m File Reference	76
7.217ExampleApplications/DiffLaser/diffLaserCostPlotIntensity.m File Reference	76
7.218ExampleApplications/DiffLaser/diffLaserCostPlotIntensityPTheta.m File Reference	76
7.219ExampleApplications/DiffLaser/diffLaserNinitNVs.m File Reference	76
7.220ExampleApplications/DiffLaser/diffLaserNOptim1.m File Reference	76
7.221ExampleApplications/DiffLaser/diffLaserNOptim2.m File Reference	76
7.222ExampleApplications/DiffLaser/diffLaserNOptim2WithoutCurrent.m File Reference	76
7.223ExampleApplications/DiffLaser/diffLaserNstab.m File Reference	76
7.224ExampleApplications/DiffLaser/diffLaserNstabRegions.m File Reference	76
7.225ExampleApplications/DiffLaser/diffLaserOptim.m File Reference	76
7.226ExampleApplications/DiffLaser/findHopf1.m File Reference	76
7.227ExampleApplications/DiffLaser/findHopf41.m File Reference	76
7.228ExampleApplications/DiffLaser/findHopfDiffLaserN.m File Reference	76

7.229ExampleApplications/DiffLaser/findHopfDiffLaserNAlphaPhi.m File Reference	76
7.230ExampleApplications/DiffLaser/findHopfDiffLaserNIntermediate.m File Reference	76
7.231 ExampleApplications/DiffLaser/findHopfDiffLaserNnoPlot.m File Reference	76
7.232ExampleApplications/DiffLaser/findHopfDiffLaserNnoPlotFunction.m File Reference	76
7.232.1 Function Documentation	77
7.232.1.1 findHopfDiffLaserNnoPlotFunction(in Ninput, in pCurrentIn, in varargin)	77
7.233ExampleApplications/DiffLaser/findHopfDiffLaserNnoPlotFunction2.m File Reference	77
7.233.1 Function Documentation	77
7.233.1.1 findHopfDiffLaserNnoPlotFunction2(in Ninput, in varargin)	77
7.234ExampleApplications/DiffLaser/findHopfDiffLaserNnoPlotFunction2b.m File Reference	77
7.234.1 Function Documentation	77
7.234.1.1 findHopfDiffLaserNnoPlotFunction2b(in Ninput, in etaIn, in varargin)	77
7.235ExampleApplications/DiffLaser/findHopfDiffLaserNnoPlotFunction3.m File Reference	77
7.235.1 Function Documentation	78
7.235.1.1 findHopfDiffLaserNnoPlotFunction3(in Ninput, in varargin)	78
7.236ExampleApplications/DiffLaser/findHopfDiffLaserNTest.m File Reference	78
7.237ExampleApplications/DiffLaser/manifoldPlotter.m File Reference	78
7.238ExampleApplications/DiffLaser/manifoldPlotter2.m File Reference	78
7.239ExampleApplications/DiffLaser/manifoldPlotter2b.m File Reference	78
7.240ExampleApplications/DiffLaser/manifoldPlotter3d.m File Reference	78
7.241 ExampleApplications/DiffLaser/manifoldPlotter3dSVG.m File Reference	78
7.242ExampleApplications/DiffLaser/oneLaser/ddeGatewayPart1.h File Reference	78
7.243ExampleApplications/DiffLaser/oneLaser/ddeGatewayPart2.h File Reference	78
7.244ExampleApplications/DiffLaser/oneLaser/hopfManiGatewayPart1.h File Reference	78
7.245ExampleApplications/DiffLaser/oneLaser/hopfManiGatewayPart2.h File Reference	78
7.246ExampleApplications/DiffLaser/oneLaser/hopfNVGatewayPart1.h File Reference	78
7.247ExampleApplications/DiffLaser/oneLaser/hopfNVGatewayPart2.h File Reference	78
7.248ExampleApplications/DiffLaser/oneLaser/oneLaserDDE.c File Reference	78
7.249ExampleApplications/DiffLaser/oneLaser/oneLaserFindHopf.m File Reference	78
7.250ExampleApplications/DiffLaser/oneLaser/oneLaserHopfManifold.c File Reference	78

7.251 ExampleApplications/DiffLaser/oneLaser/oneLaserHopfNV.c File Reference	78
7.252 ExampleApplications/DiffLaser/oneLaser/oneLaserInitNV.m File Reference	78
7.253 ExampleApplications/DiffLaser/phaseCondition.m File Reference	78
7.253.1 Function Documentation	79
7.253.1.1 phaseCondition(in point)	79
7.254 ExampleApplications/DiffLaser/simLaser.m File Reference	79
7.255 ExampleApplications/DiffLaser/Test/alt/diff7LaserDDEBackup.c File Reference	79
7.256 ExampleApplications/DiffLaser/Test/alt/diff7LaserDDEwOmegaBackup.c File Reference	79
7.257 ExampleApplications/DiffLaser/Test/alt/eigsLaserDiodeBackup.m File Reference	79
7.258 ExampleApplications/DiffLaser/Test/checkScaling.m File Reference	79
7.259 ExampleApplications/DiffLaser/Test/diff01Laser/diff1LaserDDEwOmega.c File Reference	79
7.260 ExampleApplications/DiffLaser/Test/diff01Laser/diff1LaserWithOmegaHopfManifold.c File Reference	79
7.261 ExampleApplications/DiffLaser/Test/diff01Laser/diff1LaserWithOmegaHopfNV.c File Reference . .	79
7.262 ExampleApplications/DiffLaser/Test/diff01Laser/diff1LaserWithOmegaModFoldManifold.c File Reference	79
7.263 ExampleApplications/DiffLaser/Test/diff01Laser/diff1LaserWithOmegaModFoldNV.c File Reference	79
7.264 ExampleApplications/DiffLaser/Test/diff01Laser/diff1LaserWithOmegaModHopfManifold.c File Reference	79
7.265 ExampleApplications/DiffLaser/Test/diff01Laser/diff1LaserWithOmegaModHopfNV.c File Reference	79
7.266 ExampleApplications/DiffLaser/Test/diff11Laser/diff11LaserDDEwOmega.c File Reference	80
7.267 ExampleApplications/DiffLaser/Test/diff11Laser/diff11LaserWithOmegaHopfManifold.c File Reference	80
7.268 ExampleApplications/DiffLaser/Test/diff11Laser/diff11LaserWithOmegaHopfNV.c File Reference . .	80
7.269 ExampleApplications/DiffLaser/Test/diff11Laser/diff11LaserWithOmegaModFoldManifold.c File Reference	80
7.270 ExampleApplications/DiffLaser/Test/diff11Laser/diff11LaserWithOmegaModFoldNV.c File Reference	80
7.271 ExampleApplications/DiffLaser/Test/diff11Laser/diff11LaserWithOmegaModHopfManifold.c File Reference	80
7.272 ExampleApplications/DiffLaser/Test/diff11Laser/diff11LaserWithOmegaModHopfNV.c File Reference	80
7.273 ExampleApplications/DiffLaser/Test/diff16Laser/diff16LaserDDEwOmega.c File Reference	80
7.274 ExampleApplications/DiffLaser/Test/diff16Laser/diff16LaserWithOmegaHopfManifold.c File Reference	80
7.275 ExampleApplications/DiffLaser/Test/diff16Laser/diff16LaserWithOmegaHopfNV.c File Reference . .	80
7.276 ExampleApplications/DiffLaser/Test/diff21Laser/diff21LaserDDEwOmega.c File Reference	80

7.277ExampleApplications/DiffLaser/Test/diff21Laser/diff21LaserWithOmegaHopfEig.c File Reference .	80
7.278ExampleApplications/DiffLaser/Test/diff21Laser/diff21LaserWithOmegaHopfManifold.c File Reference	81
7.279ExampleApplications/DiffLaser/Test/diff21Laser/diff21LaserWithOmegaHopfNV.c File Reference . .	81
7.280ExampleApplications/DiffLaser/Test/diff21Laser/diff21LaserWithOmegaModFoldManifold.c File Reference	81
7.281ExampleApplications/DiffLaser/Test/diff21Laser/diff21LaserWithOmegaModFoldNV.c File Reference	81
7.282ExampleApplications/DiffLaser/Test/diff21Laser/diff21LaserWithOmegaModHopfManifold.c File Reference	81
7.283ExampleApplications/DiffLaser/Test/diff21Laser/diff21LaserWithOmegaModHopfNV.c File Reference	81
7.284ExampleApplications/DiffLaser/Test/diff21Laser/findEigVectTMP.m File Reference	81
7.285ExampleApplications/DiffLaser/Test/diff31Laser/Backup/diff31LaserDDEwOmega.c File Reference	81
7.286ExampleApplications/DiffLaser/Test/diff31Laser/diff31LaserDDEwOmega.c File Reference	81
7.287ExampleApplications/DiffLaser/Test/diff31Laser/Backup/diff31LaserWithOmegaHopfManifold.c File Reference	81
7.288ExampleApplications/DiffLaser/Test/diff31Laser/diff31LaserWithOmegaHopfManifold.c File Reference	81
7.289ExampleApplications/DiffLaser/Test/diff31Laser/Backup/diff31LaserWithOmegaHopfNV.c File Reference	81
7.290ExampleApplications/DiffLaser/Test/diff31Laser/diff31LaserWithOmegaHopfNV.c File Reference . .	82
7.291ExampleApplications/DiffLaser/Test/diff31Laser/Backup/diff31LaserWithOmegaModFoldManifold.c File Reference	82
7.292ExampleApplications/DiffLaser/Test/diff31Laser/diff31LaserWithOmegaModFoldManifold.c File Reference	82
7.293ExampleApplications/DiffLaser/Test/diff31Laser/Backup/diff31LaserWithOmegaModFoldNV.c File Reference	82
7.294ExampleApplications/DiffLaser/Test/diff31Laser/diff31LaserWithOmegaModFoldNV.c File Reference	82
7.295ExampleApplications/DiffLaser/Test/diff31Laser/Backup/diff31LaserWithOmegaModHopfManifold.c File Reference	82
7.296ExampleApplications/DiffLaser/Test/diff31Laser/diff31LaserWithOmegaModHopfManifold.c File Reference	82
7.297ExampleApplications/DiffLaser/Test/diff31Laser/Backup/diff31LaserWithOmegaModHopfNV.c File Reference	82
7.298ExampleApplications/DiffLaser/Test/diff31Laser/diff31LaserWithOmegaModHopfNV.c File Reference	82
7.299ExampleApplications/DiffLaser/Test/diff41Laser/diff41LaserDDEwOmega.c File Reference	82
7.300ExampleApplications/DiffLaser/Test/diff41Laser/diff41LaserWithOmegaHopfManifold.c File Reference	82
7.301ExampleApplications/DiffLaser/Test/diff41Laser/diff41LaserWithOmegaHopfNV.c File Reference . .	82

7.302ExampleApplications/DiffLaser/Test/diff41Laser/diff41LaserWithOmegaModFoldManifold.c File Reference	83
7.303ExampleApplications/DiffLaser/Test/diff41Laser/diff41LaserWithOmegaModFoldNV.c File Reference	83
7.304ExampleApplications/DiffLaser/Test/diff41Laser/diff41LaserWithOmegaModHopfManifold.c File Reference	83
7.305ExampleApplications/DiffLaser/Test/diff41Laser/diff41LaserWithOmegaModHopfNV.c File Reference	83
7.306ExampleApplications/DiffLaser/Test/diff51Laser/diff51LaserDDEwOmega.c File Reference	83
7.307ExampleApplications/DiffLaser/Test/diff51Laser/diff51LaserWithOmegaHopfManifold.c File Reference	83
7.308ExampleApplications/DiffLaser/Test/diff51Laser/diff51LaserWithOmegaHopfNV.c File Reference	83
7.309ExampleApplications/DiffLaser/Test/diff51Laser/diff51LaserWithOmegaModFoldManifold.c File Reference	83
7.310ExampleApplications/DiffLaser/Test/diff51Laser/diff51LaserWithOmegaModFoldNV.c File Reference	83
7.311ExampleApplications/DiffLaser/Test/diff51Laser/diff51LaserWithOmegaModHopfManifold.c File Reference	83
7.312ExampleApplications/DiffLaser/Test/diff51Laser/diff51LaserWithOmegaModHopfNV.c File Reference	83
7.313ExampleApplications/DiffLaser/Test/diff61Laser/diff61LaserDDEwOmega.c File Reference	83
7.314ExampleApplications/DiffLaser/Test/diff61Laser/diff61LaserWithOmegaHopfManifold.c File Reference	84
7.315ExampleApplications/DiffLaser/Test/diff61Laser/diff61LaserWithOmegaHopfNV.c File Reference	84
7.316ExampleApplications/DiffLaser/Test/diff61Laser/diff61LaserWithOmegaModFoldManifold.c File Reference	84
7.317ExampleApplications/DiffLaser/Test/diff61Laser/diff61LaserWithOmegaModFoldNV.c File Reference	84
7.318ExampleApplications/DiffLaser/Test/diff61Laser/diff61LaserWithOmegaModHopfManifold.c File Reference	84
7.319ExampleApplications/DiffLaser/Test/diff61Laser/diff61LaserWithOmegaModHopfNV.c File Reference	84
7.320ExampleApplications/DiffLaser/Test/diff71Laser/diff71LaserDDEwOmega.c File Reference	84
7.321ExampleApplications/DiffLaser/Test/diff71Laser/diff71LaserWithOmegaHopfManifold.c File Reference	84
7.322ExampleApplications/DiffLaser/Test/diff71Laser/diff71LaserWithOmegaHopfNV.c File Reference	84
7.323ExampleApplications/DiffLaser/Test/diff71Laser/diff71LaserWithOmegaModFoldManifold.c File Reference	84
7.324ExampleApplications/DiffLaser/Test/diff71Laser/diff71LaserWithOmegaModFoldNV.c File Reference	84
7.325ExampleApplications/DiffLaser/Test/diff71Laser/diff71LaserWithOmegaModHopfManifold.c File Reference	84
7.326ExampleApplications/DiffLaser/Test/diff71Laser/diff71LaserWithOmegaModHopfNV.c File Reference	85
7.327ExampleApplications/DiffLaser/Test/diff81Laser/diff81LaserDDEwOmega.c File Reference	85

7.328ExampleApplications/DiffLaser/Test/diff81Laser/diff81LaserWithOmegaHopfManifold.c File Reference	85
7.329ExampleApplications/DiffLaser/Test/diff81Laser/diff81LaserWithOmegaHopfNV.c File Reference . . .	85
7.330ExampleApplications/DiffLaser/Test/diff81Laser/diff81LaserWithOmegaModFoldManifold.c File Reference	85
7.331 ExampleApplications/DiffLaser/Test/diff81Laser/diff81LaserWithOmegaModFoldNV.c File Reference	85
7.332ExampleApplications/DiffLaser/Test/diff81Laser/diff81LaserWithOmegaModHopfManifold.c File Reference	85
7.333ExampleApplications/DiffLaser/Test/diff81Laser/diff81LaserWithOmegaModHopfNV.c File Reference	85
7.334ExampleApplications/DiffLaser/Test/eigenvalueZero.m File Reference	85
7.335ExampleApplications/DiffLaser/Test/Systemerschliessung/diff7LaserDDEvisual.c File Reference . .	85
7.336ExampleApplications/DiffLaser/Test/Systemerschliessung/efieldCond.m File Reference	85
7.336.1 Function Documentation	86
7.336.1.1 efieldCond(in point)	86
7.337ExampleApplications/DiffLaser/Test/Systemerschliessung/eigsLaserDiode.m File Reference	86
7.338ExampleApplications/DiffLaser/Test/Systemerschliessung/eigsLaserDiode11.m File Reference . . .	86
7.339ExampleApplications/DiffLaser/Test/Systemerschliessung/omegaAEasODE.m File Reference . . .	86
7.340ExampleApplications/DiffLaser/Test/Systemerschliessung/simLaserDiodeVisual.m File Reference .	86
7.341ExampleApplications/DiffLaser/Test/Systemerschliessung/symbolicComplex.m File Reference . . .	86
7.342ExampleApplications/DiffLaser/testDiscretization.m File Reference	86
7.343ExampleApplications/DiffLaser/testTruncation.m File Reference	86
7.344ExampleApplications/DiffLaser/truncManifoldData.m File Reference	86
7.344.1 Function Documentation	86
7.344.1.1 truncManifoldData(in data, in lower, in upper)	86
7.345ExampleApplications/DiffLaser/uniformlyDiscretizeCurve.m File Reference	86
7.345.1 Function Documentation	87
7.345.1.1 uniformlyDiscretizeCurve(in curve, in nPoints)	87
7.346ExampleApplications/DiffLaser/uniformlyDiscretizeCurveFixedStep.m File Reference	87
7.346.1 Function Documentation	87
7.346.1.1 uniformlyDiscretizeCurveFixedStep(in curve, in pieceLength)	87
7.347ExampleApplications/DiffLaser/Wochenendskript.m File Reference	87
7.348ExampleApplications/FCC/CodeGeneration/pcontrolledFCC15DDE.c File Reference	87

7.349ExampleApplications/FCC/I15/pcontrolledFCC15DDE.c File Reference	87
7.350ExampleApplications/FCC/CodeGeneration/pcontrolledFCC15Delays.c File Reference	87
7.351 ExampleApplications/FCC/CodeGeneration/pcontrolledFCC15FoldManifold.c File Reference	87
7.352ExampleApplications/FCC/CodeGeneration/pcontrolledFCC15FoldNV.c File Reference	87
7.353ExampleApplications/FCC/CodeGeneration/pcontrolledFCC15HopfManifold.c File Reference	87
7.354ExampleApplications/FCC/I15/pcontrolledFCC15HopfManifold.c File Reference	87
7.355ExampleApplications/FCC/CodeGeneration/pcontrolledFCC15HopfNV.c File Reference	87
7.356ExampleApplications/FCC/I15/pcontrolledFCC15HopfNV.c File Reference	88
7.357ExampleApplications/FCC/CodeGeneration/pcontrolledFCC15ModFoldManifold.c File Reference	88
7.358ExampleApplications/FCC/I15/pcontrolledFCC15ModFoldManifold.c File Reference	88
7.359ExampleApplications/FCC/CodeGeneration/pcontrolledFCC15ModFoldNV.c File Reference	88
7.360ExampleApplications/FCC/I15/pcontrolledFCC15ModFoldNV.c File Reference	88
7.361 ExampleApplications/FCC/CodeGeneration/pcontrolledFCC15ModHopfManifold.c File Reference	88
7.362ExampleApplications/FCC/I15/pcontrolledFCC15ModHopfManifold.c File Reference	88
7.363ExampleApplications/FCC/CodeGeneration/pcontrolledFCC15ModHopfNV.c File Reference	88
7.364ExampleApplications/FCC/I15/pcontrolledFCC15ModHopfNV.c File Reference	88
7.365ExampleApplications/FCC/I15/compareResults.m File Reference	88
7.366ExampleApplications/FCC/I15/convertFold2ModFold.m File Reference	88
7.367ExampleApplications/FCC/I15/FCC15HopfNV.c File Reference	88
7.368ExampleApplications/FCC/I15/fixedAndFreeAlpha.m File Reference	88
7.368.1 Function Documentation	89
7.368.1.1 fixedAndFreeAlpha(in yMaAlpha, in alphaIn, in contInd1, in contInd2)	89
7.369ExampleApplications/FCC/I15/JuliaSimulation/importSim2Plot.m File Reference	89
7.370ExampleApplications/FCC/I15/noStabOptPControlledFCC15.m File Reference	89
7.371 ExampleApplications/FCC/I15/noStabOptPControlledFCC15IneqScaled.m File Reference	89
7.372ExampleApplications/FCC/I15/pcontrolledFCC15DDE2.c File Reference	89
7.373ExampleApplications/FCC/I15/pcontrolledFCC15foldManifold.c File Reference	89
7.374ExampleApplications/FCC/I15/pcontrolledFCC15foldManifold2.c File Reference	89
7.375ExampleApplications/FCC/I15/pcontrolledFCC15foldNV.c File Reference	89
7.376ExampleApplications/FCC/I15/pcontrolledFCC15foldNV2.c File Reference	89

7.377 ExampleApplications/FCC/l15/pcontrolledFCC15HopfNVprint.c File Reference	89
7.378 ExampleApplications/FCC/l15/pcontrolledFCC15ModFoldManifold2.c File Reference	89
7.379 ExampleApplications/FCC/l15/pcontrolledFCC15ModFoldNV2.c File Reference	89
7.380 ExampleApplications/FCC/l15/pcontrolledFCCContFold.m File Reference	89
7.381 ExampleApplications/FCC/l15/pcontrolledFCCContFoldFromOpt.m File Reference	89
7.382 ExampleApplications/FCC/l15/pcontrolledFCCContHopf.m File Reference	89
7.383 ExampleApplications/FCC/l15/pcontrolledFCCContinuationFindExp.m File Reference	89
7.384 ExampleApplications/FCC/l15/pcontrolledFCCContinuationFromOpt.m File Reference	90
7.385 ExampleApplications/FCC/l15/pcontrolledFCCContinuationMultPlot.m File Reference	90
7.386 ExampleApplications/FCC/l15/plotAllFoldDirections.m File Reference	90
7.387 ExampleApplications/FCC/l15/plotControlledBranchStabilityFCC15.m File Reference	90
7.388 ExampleApplications/FCC/l15/plotFoldModFoldManiPcontrolledFCC15.m File Reference	90
7.389 ExampleApplications/FCC/l15/plotModFoldManiPcontrolledFCC15.m File Reference	90
7.390 ExampleApplications/FCC/l15/plotpcontrolledFCC15HopfManis.m File Reference	90
7.391 ExampleApplications/FCC/l15/plotStabilitypcontrolledFCC15.m File Reference	90
7.392 ExampleApplications/FCC/l15/robExpOptPControlledFCC15.m File Reference	90
7.393 ExampleApplications/FCC/l15/robExpOptPControlledFCC15Ineq.m File Reference	90
7.394 ExampleApplications/FCC/l15/robExpOptPControlledFCC15IneqScale.m File Reference	90
7.395 ExampleApplications/FCC/l15/robOptControlledFCC15.m File Reference	90
7.396 ExampleApplications/FCC/l15/robOptPControlledFCC15.m File Reference	90
7.397 ExampleApplications/FCC/l15/robOptPControlledFCC15Ineq.m File Reference	90
7.398 ExampleApplications/FCC/l15/robOptPControlledFCC15IneqScale.m File Reference	90
7.399 ExampleApplications/FCC/l15/shiftpcontrolledFCCFoldManifoldToModFold.m File Reference	91
7.400 ExampleApplications/FCC/l15/validatepcontrolledFCCFoldManifold.m File Reference	91
7.401 ExampleApplications/FCC/l15/validatepcontrolledFCCHopfManifold.m File Reference	91
7.402 ExampleApplications/FCC/l15/WochenendSkript.m File Reference	91
7.403 ExampleApplications/TDS2016Population/optimPopMaxRobust.m File Reference	91
7.404 ExampleApplications/TDS2016Population/optimPopulation.m File Reference	91
7.405 ExampleApplications/TDS2016Population/optimPopulationFixAlpha.m File Reference	91
7.406 ExampleApplications/TDS2016Population/populationModelDDE.c File Reference	91
7.407 TestScripts/testAutomatedManifoldAdding.m File Reference	91
7.408 TestScripts/testDDE.m File Reference	91
7.409 TestScripts/testDDENLP.m File Reference	91
7.410 TestScripts/testEqualityConstraint.m File Reference	91
7.411 TestScripts/testInitPointGrid.m File Reference	91
7.412 TestScripts/TestManifoldOnLine.m File Reference	91
7.413 TestScripts/testNominalShifting.m File Reference	91
7.414 TestScripts/testNVConstraint.m File Reference	91
7.415 TestScripts/testVariableVector.m File Reference	91
7.416 varCollection.m File Reference	91
7.416.1 Detailed Description	92
7.416.2 Function Documentation	92
7.416.2.1 varCollection(in type, in offset, in x, in alpha, in p, in algVars)	92

Chapter 1

Documentation of the Toolbox DDENLP for robust steady state optimization of delayed systems.

1.1 Using this toolbox

This toolbox aids with the optimization of delayed systems using normal vector constraints for robust stability properties.

The code documentation can be found in this file.

Some common application/coding problems can be found in the [Frequently Asked Questions](#).

Additionally, there are some example files.

1.2 Funding

The development of this toolbox was funded by Deutsche Forschungsgemeinschaft (grant MO 1086/13).

Author

Jonas Otten and Martin Moennigmann

Date

18 Jul 2017

Chapter 2

Frequently Asked Questions

2.1 Convergence of Initialization

Why does my initial value of for a (mod)Hopf converge to a (mod)fold?
Check if you have specified $\omega \approx 0$

2.2 DDE-BIFTOOL

Why does the calculation of eigenvalues using DDE-BIFTOOL throw the error message "Input to EIG must not contain NaN or Inf."?
The DDE-BIFTOOL-Parameter `method.stability.minimal_real_part` is too big. Try reducing it.

Author

Jonas Otten and Martin Moennigmann

Date

20 Sep 2017

Chapter 3

Hierarchical Index

3.1 Class Hierarchy

This inheritance list is sorted roughly, but not completely, alphabetically:

handle	36
DDE	17
DDENLP	21
EqualityConstraint	34
NVConstraint	41
StStConstraint	47
ManifoldSlice	37
VariableVector	50

Chapter 4

Class Index

4.1 Class List

Here are the classes, structs, unions and interfaces with brief descriptions:

DDE	The instances of this class contain information for a DDE used in DDENLP	17
DDENLP	This class describes the whole optimization problem for delayed systems	21
EqualityConstraint	(abstract) class that inherits its properties to equality constraints	34
handle	36
ManifoldSlice	The instances of this class generate visualization data	37
NVConstraint	Instances of this class are objects representing normal vector constraints	41
StStConstraint	This class describes equality constraints representing the steady state condition for the nominal parameters	47
VariableVector	The instances of this class contain information for a VariableVector used in DDENLP	50

Chapter 5

File Index

5.1 File List

Here is a list of all files with brief descriptions:

checkStability.m	58
circle.m	58
varCollection.m	
Creates variable collections for different manifold types	91
@DDE/DDE.m	
The instances of this class contain information for a DDE used in DDENLP	55
@DDENLP/DDENLP.m	55
@EqualityConstraint/EqualityConstraint.m	
(abstract) class that inherits its properties to equality constraints	55
@ManifoldSlice/ManifoldSlice.m	56
@NVConstraint/NVConstraint.m	
Instances of this class are objects representing normal vector constraints	56
@StStConstraint/StStConstraint.m	
Class that inherits its properties from EqualityConstraints	57
@VariableVector/VariableVector.m	
The instances of this class contain information for a VariableVector used in DDENLP	57
demo/optimPopulationTestManifoldSlice.m	58
demo/populationModelModFoldMani.c	58
demo/populationModelModFoldNV.c	58
ExampleApplications/CDC2016SupplyChain/supplyChainDelays.m	58
ExampleApplications/CDC2016SupplyChain/supplyChainHopfMani.c	59
ExampleApplications/CDC2016SupplyChain/supplyChainHopfNV.c	59
ExampleApplications/CDC2016SupplyChain/supplyChainModel.m	59
ExampleApplications/CDC2016SupplyChain/supplyChainOptim.m	59
ExampleApplications/CDC2016SupplyChain/supplyChainOptimAcceptingTwoEigsInRightHP.m	59
ExampleApplications/CoupledCSTRs/allNCSTROptim.m	59
ExampleApplications/CoupledCSTRs/defineROIWeightingNCSTR.m	59
ExampleApplications/CoupledCSTRs/NCSTRdelays.m	59
ExampleApplications/CoupledCSTRs/reactorCost.m	60
ExampleApplications/CoupledCSTRs/setNCSTRBoundaries.m	61
ExampleApplications/CoupledCSTRs/oneCSTRwithFlashSep/oneCSTRoneFlashSepDDE.c	60
ExampleApplications/CoupledCSTRs/oneCSTRwithFlashSep/oneCSTRoneFlashSepHopfMani.c	60
ExampleApplications/CoupledCSTRs/oneCSTRwithFlashSep/oneCSTRoneFlashSepHopfManiNV.c	60
ExampleApplications/CoupledCSTRs/oneCSTRwithFlashSep/oneCSTROptim.m	60
ExampleApplications/CoupledCSTRs/oneCSTRwithFlashSep/returnOnInvest1.m	60

ExampleApplications/CoupledCSTRs/threeCSTRwithFlashSep/returnOnInvest3.m	61
ExampleApplications/CoupledCSTRs/threeCSTRwithFlashSep/threeCSTRoneFlashSepDDE.c	61
ExampleApplications/CoupledCSTRs/threeCSTRwithFlashSep/threeCSTRoneFlashSepFoldMani.c	61
ExampleApplications/CoupledCSTRs/threeCSTRwithFlashSep/threeCSTRoneFlashSepFoldManiNV.c	61
ExampleApplications/CoupledCSTRs/threeCSTRwithFlashSep/threeCSTRoneFlashSepHopfMani.c	61
ExampleApplications/CoupledCSTRs/threeCSTRwithFlashSep/threeCSTRoneFlashSepHopfManiNV.c	61
ExampleApplications/CoupledCSTRs/threeCSTRwithFlashSep/threeCSTROptim.m	61
ExampleApplications/CoupledCSTRs/threeCSTRwithFlashSep/threeCSTRStab.m	62
ExampleApplications/CoupledCSTRs/threeCSTRwithFlashSep/tmp.m	62
ExampleApplications/CoupledCSTRs/twoCSTRwithFlashSep/returnOnInvest2.m	62
ExampleApplications/CoupledCSTRs/twoCSTRwithFlashSep/twoCSTRoneFlashSepDDE.c	62
ExampleApplications/CoupledCSTRs/twoCSTRwithFlashSep/twoCSTRoneFlashSepHopfMani.c	62
ExampleApplications/CoupledCSTRs/twoCSTRwithFlashSep/twoCSTRoneFlashSepHopfManiNV.c	62
ExampleApplications/CoupledCSTRs/twoCSTRwithFlashSep/twoCSTROptim.m	62
ExampleApplications/CoupledLasers/10L_symm/DDE_10L_symm.c	63
ExampleApplications/CoupledLasers/10L_symm/Mod_Fold_10L_symm.c	63
ExampleApplications/CoupledLasers/10L_symm/NV_Mod_Fold_10L_symm.c	63
ExampleApplications/CoupledLasers/10L_symm/optim_10L_symm_ausnutzung_symm.m	63
ExampleApplications/CoupledLasers/2L_symm/Laser_DDE_2L.c	63
ExampleApplications/CoupledLasers/2L_symm/maniPlotter2L.m	63
ExampleApplications/CoupledLasers/2L_symm/Mod_Fold_2L.c	63
ExampleApplications/CoupledLasers/2L_symm/NV_Mod_Fold_2L.c	64
ExampleApplications/CoupledLasers/2L_symm/optim2LRobSync.m	64
ExampleApplications/CoupledLasers/2L_symm/optim2LRobSyncRobPlot.m	64
ExampleApplications/CoupledLasers/2L_symm/optim2LSync.m	64
ExampleApplications/CoupledLasers/2L_symm/plotCostFun.m	65
ExampleApplications/CoupledLasers/2L_symm/unstab_2L_omega_in_p_2_Con.m	65
ExampleApplications/CoupledLasers/2L_symmOldModel/Laser_DDE_2L.c	63
ExampleApplications/CoupledLasers/2L_symmOldModel/maniPlotter2L.m	63
ExampleApplications/CoupledLasers/2L_symmOldModel/Mod_Fold_2L.c	63
ExampleApplications/CoupledLasers/2L_symmOldModel/NV_Mod_Fold_2L.c	64
ExampleApplications/CoupledLasers/2L_symmOldModel/optim2LRobSync.m	64
ExampleApplications/CoupledLasers/2L_symmOldModel/optim2LRobSyncRobPlot.m	64
ExampleApplications/CoupledLasers/2L_symmOldModel/optim2LSync.m	64
ExampleApplications/CoupledLasers/2L_symmOldModel/plotCostFun.m	65
ExampleApplications/CoupledLasers/2L_symmOldModel/unstab_2L_omega_in_p_2_Con.m	65
ExampleApplications/CoupledLasers/2L_symmOldParam/Laser_DDE_2L.c	63
ExampleApplications/CoupledLasers/2L_symmOldParam/maniPlotter2L.m	63
ExampleApplications/CoupledLasers/2L_symmOldParam/Mod_Fold_2L.c	64
ExampleApplications/CoupledLasers/2L_symmOldParam/NV_Mod_Fold_2L.c	64
ExampleApplications/CoupledLasers/2L_symmOldParam/optim2LRobSync.m	64
ExampleApplications/CoupledLasers/2L_symmOldParam/optim2LRobSyncRobPlot.m	64
ExampleApplications/CoupledLasers/2L_symmOldParam/optim2LSync.m	64
ExampleApplications/CoupledLasers/2L_symmOldParam/plotCostFun.m	65
ExampleApplications/CoupledLasers/2L_symmOldParam/unstab_2L_omega_in_p_2_Con.m	65
ExampleApplications/CoupledLasers/3L_asymm/Bifurkationen_3L_asymm_fsolve_Schnittgeraden_neu.m	65
ExampleApplications/CoupledLasers/3L_asymm/createParamSpacePlots.m	65
ExampleApplications/CoupledLasers/3L_asymm/DDE_3L_SETUP_1.c	66
ExampleApplications/CoupledLasers/3L_asymm/Mod_Fold_3L_SETUP_1.c	66
ExampleApplications/CoupledLasers/3L_asymm/Mod_Hopf_3L_SETUP_1.c	66
ExampleApplications/CoupledLasers/3L_asymm/NV_Mod_Fold_3L_SETUP_1.c	66
ExampleApplications/CoupledLasers/3L_asymm/NV_Mod_Hopf_3L_SETUP_1.c	67
ExampleApplications/CoupledLasers/3L_asymm/optim_3L_Setup1_Ausarbeitung.m	66
ExampleApplications/CoupledLasers/3L_asymm/optim_3L_Setup1_find_Start.m	67
ExampleApplications/CoupledLasers/3L_asymm/prepareManifoldFig.m	67
ExampleApplications/CoupledLasers/3L_asymm/Pump_3L_fixed_K_fsolve_Guete.m	67
ExampleApplications/CoupledLasers/3L_asymm/Syncmanifold_3L_Setup1_fkt.m	67

ExampleApplications/CoupledLasers/3L_asymm/Neue_Kostenfunktion/optim_3L_Setup1_Ausarbeitung.m	66
ExampleApplications/CoupledLasers/3L_asymmOldParam/Bifurkationen_3L_asymm_fsolve_Schnittgeraden_neu.m	65
ExampleApplications/CoupledLasers/3L_asymmOldParam/createParamSpacePlots.m	65
ExampleApplications/CoupledLasers/3L_asymmOldParam/DDE_3L_SETUP_1.c	66
ExampleApplications/CoupledLasers/3L_asymmOldParam/Mod_Fold_3L_SETUP_1.c	66
ExampleApplications/CoupledLasers/3L_asymmOldParam/Mod_Hopf_3L_SETUP_1.c	66
ExampleApplications/CoupledLasers/3L_asymmOldParam/NV_Mod_Fold_3L_SETUP_1.c	66
ExampleApplications/CoupledLasers/3L_asymmOldParam/NV_Mod_Hopf_3L_SETUP_1.c	67
ExampleApplications/CoupledLasers/3L_asymmOldParam/optim_3L_Setup1_Ausarbeitung.m	66
ExampleApplications/CoupledLasers/3L_asymmOldParam/optim_3L_Setup1_Ausarbeitung_incl_plot.m	68
ExampleApplications/CoupledLasers/3L_asymmOldParam/optim_3L_Setup1_find_Start.m	67
ExampleApplications/CoupledLasers/3L_asymmOldParam/prepareManifoldFig.m	67
ExampleApplications/CoupledLasers/3L_asymmOldParam/Pump_3L_fixed_K_fsolve_Guete.m	67
ExampleApplications/CoupledLasers/3L_asymmOldParam/Syncmanifold_3L_Setup1_fkt.m	67
ExampleApplications/CoupledLasers/3L_symm/Bifurkationen_3L_symm_fsolve_Schnittgeraden.m	68
ExampleApplications/CoupledLasers/3L_symm/createParamSpacePlots.m	65
ExampleApplications/CoupledLasers/3L_symm/DDE_3L_symm.c	68
ExampleApplications/CoupledLasers/3L_symm/Mod_Fold_3L_symm.c	68
ExampleApplications/CoupledLasers/3L_symm/NV_Mod_Fold_3L_symm.c	68
ExampleApplications/CoupledLasers/3L_symm/optim_3L_symm.m	68
ExampleApplications/CoupledLasers/3L_symm/plotCostFun.m	65
ExampleApplications/CoupledLasers/3L_symm/Pump_3L_fsolve_Guete.m	68
ExampleApplications/CoupledLasers/3L_symm/Syncmanifold_3L_fkt.m	69
ExampleApplications/CoupledLasers/3L_symmOldParam/Bifurkationen_3L_symm_fsolve_Schnittgeraden.m	68
ExampleApplications/CoupledLasers/3L_symmOldParam/createParamSpacePlots.m	66
ExampleApplications/CoupledLasers/3L_symmOldParam/DDE_3L_symm.c	68
ExampleApplications/CoupledLasers/3L_symmOldParam/Mod_Fold_3L_symm.c	68
ExampleApplications/CoupledLasers/3L_symmOldParam/NV_Mod_Fold_3L_symm.c	68
ExampleApplications/CoupledLasers/3L_symmOldParam/optim_3L_symm.m	68
ExampleApplications/CoupledLasers/3L_symmOldParam/plotCostFun.m	65
ExampleApplications/CoupledLasers/3L_symmOldParam/Pump_3L_fsolve_Guete.m	69
ExampleApplications/CoupledLasers/3L_symmOldParam/Syncmanifold_3L_fkt.m	69
ExampleApplications/DiffLaser/CompareDiskretisations.m	71
ExampleApplications/DiffLaser/CompareResults.m	71
ExampleApplications/DiffLaser/continueHopfDiffLaserN.m	71
ExampleApplications/DiffLaser/diffLaser11Optim.m	75
ExampleApplications/DiffLaser/diffLaser11Optim2.m	75
ExampleApplications/DiffLaser/diffLaser21Optim2.m	75
ExampleApplications/DiffLaser/diffLaser31Optim2.m	75
ExampleApplications/DiffLaser/diffLaser61Optim2.m	76
ExampleApplications/DiffLaser/diffLaserCostPlot.m	76
ExampleApplications/DiffLaser/diffLaserCostPlotIntensity.m	76
ExampleApplications/DiffLaser/diffLaserCostPlotIntensityPTheta.m	76
ExampleApplications/DiffLaser/diffLaserNinitNVs.m	76
ExampleApplications/DiffLaser/diffLaserNOptim1.m	76
ExampleApplications/DiffLaser/diffLaserNOptim2.m	76
ExampleApplications/DiffLaser/diffLaserNOptim2WithoutCurrent.m	76
ExampleApplications/DiffLaser/diffLaserNStab.m	76
ExampleApplications/DiffLaser/diffLaserNstabRegions.m	76
ExampleApplications/DiffLaser/diffLaserOptim.m	76
ExampleApplications/DiffLaser/findHopf1.m	76
ExampleApplications/DiffLaser/findHopf41.m	76
ExampleApplications/DiffLaser/findHopfDiffLaserN.m	76
ExampleApplications/DiffLaser/findHopfDiffLaserNAlphaPhi.m	76
ExampleApplications/DiffLaser/findHopfDiffLaserNIntermediate.m	76

ExampleApplications/DiffLaser/findHopfDiffLaserNnoPlot.m	76
ExampleApplications/DiffLaser/findHopfDiffLaserNnoPlotFunction.m	76
ExampleApplications/DiffLaser/findHopfDiffLaserNnoPlotFunction2.m	77
ExampleApplications/DiffLaser/findHopfDiffLaserNnoPlotFunction2b.m	77
ExampleApplications/DiffLaser/findHopfDiffLaserNnoPlotFunction3.m	77
ExampleApplications/DiffLaser/findHopfDiffLaserNTest.m	78
ExampleApplications/DiffLaser/manifoldPlotter.m	78
ExampleApplications/DiffLaser/manifoldPlotter2.m	78
ExampleApplications/DiffLaser/manifoldPlotter2b.m	78
ExampleApplications/DiffLaser/manifoldPlotter3d.m	78
ExampleApplications/DiffLaser/manifoldPlotter3dSVG.m	78
ExampleApplications/DiffLaser/phaseCondition.m	78
ExampleApplications/DiffLaser/simLaser.m	79
ExampleApplications/DiffLaser/testDiscretization.m	86
ExampleApplications/DiffLaser/testTruncation.m	86
ExampleApplications/DiffLaser/truncManifoldData.m	86
ExampleApplications/DiffLaser/uniformlyDiscretizeCurve.m	86
ExampleApplications/DiffLaser/uniformlyDiscretizeCurveFixedStep.m	87
ExampleApplications/DiffLaser/Wochenendskript.m	87
ExampleApplications/DiffLaser/CodeGeneration/diff11LaserDDE.c	69
ExampleApplications/DiffLaser/CodeGeneration/diff11LaserDelays.c	69
ExampleApplications/DiffLaser/CodeGeneration/diff11LaserHopfManifold.c	69
ExampleApplications/DiffLaser/CodeGeneration/diff11LaserHopfNV.c	69
ExampleApplications/DiffLaser/CodeGeneration/diff21LaserDDE.c	69
ExampleApplications/DiffLaser/CodeGeneration/diff21LaserDelays.c	70
ExampleApplications/DiffLaser/CodeGeneration/diff21LaserHopfManifold.c	70
ExampleApplications/DiffLaser/CodeGeneration/diff21LaserHopfNV.c	70
ExampleApplications/DiffLaser/CodeGeneration/diff21LaserModFoldManifold.c	70
ExampleApplications/DiffLaser/CodeGeneration/diff21LaserModFoldNV.c	70
ExampleApplications/DiffLaser/CodeGeneration/diff21LaserModHopfManifold.c	70
ExampleApplications/DiffLaser/CodeGeneration/diff21LaserModHopfNV.c	70
ExampleApplications/DiffLaser/CodeGeneration/diff31LaserDDE.c	70
ExampleApplications/DiffLaser/CodeGeneration/diff31LaserDelays.c	70
ExampleApplications/DiffLaser/CodeGeneration/diff31LaserHopfManifold.c	70
ExampleApplications/DiffLaser/CodeGeneration/diff31LaserHopfNV.c	70
ExampleApplications/DiffLaser/CodeGeneration/diff41LaserDDE.c	71
ExampleApplications/DiffLaser/CodeGeneration/diff41LaserDelays.c	71
ExampleApplications/DiffLaser/CodeGeneration/diff41LaserHopfManifold.c	71
ExampleApplications/DiffLaser/CodeGeneration/diff41LaserHopfNV.c	71
ExampleApplications/DiffLaser/CodeGeneration/vonJens/DDE_1L_omega_in_p.c	71
ExampleApplications/DiffLaser/CodeGeneration/vonJens/Mod_Fold_1L.c	71
ExampleApplications/DiffLaser/CodeGeneration/vonJens/NV_Mod_Fold_1L.c	71
ExampleApplications/DiffLaser/Diff11/diff11Laser2DDE.c	72
ExampleApplications/DiffLaser/Diff11/diff11Laser2Delays.c	72
ExampleApplications/DiffLaser/Diff11/diff11Laser2HopfManifold.c	71
ExampleApplications/DiffLaser/Diff11/diff11Laser2HopfNV.c	71
ExampleApplications/DiffLaser/Diff11/findHopf.m	72
ExampleApplications/DiffLaser/Diff11/findHopfFromCrit.m	72
ExampleApplications/DiffLaser/Diff11/optimdiff11Laser.m	72
ExampleApplications/DiffLaser/Diff11/optimdiff11LaserIntensity.m	72
ExampleApplications/DiffLaser/Diff11/optimdiffNLaser.m	72
ExampleApplications/DiffLaser/Diff11/backup/diff11Laser2HopfManifold.c	71
ExampleApplications/DiffLaser/Diff11/backup/diff11Laser2HopfNV.c	71
ExampleApplications/DiffLaser/Diff21/createFigure.m	74
ExampleApplications/DiffLaser/Diff21/diff21Laser2DDE.c	72
ExampleApplications/DiffLaser/Diff21/diff21Laser2Delays.c	72
ExampleApplications/DiffLaser/Diff21/diff21Laser2HopfEig.c	73
ExampleApplications/DiffLaser/Diff21/diff21Laser2HopfManifold.c	73

ExampleApplications/DiffLaser/Diff21/diff21Laser2HopfNV.c	73
ExampleApplications/DiffLaser/Diff21/diff21Laser2ModFoldManifold.c	73
ExampleApplications/DiffLaser/Diff21/diff21Laser2ModFoldNV.c	73
ExampleApplications/DiffLaser/Diff21/diff21Laser2ModHopfManifold.c	73
ExampleApplications/DiffLaser/Diff21/diff21Laser2ModHopfNV.c	74
ExampleApplications/DiffLaser/Diff21/diff21LaserDDE.c	70
ExampleApplications/DiffLaser/Diff21/findHopf.m	72
ExampleApplications/DiffLaser/Diff21/findHopfFromCrit.m	72
ExampleApplications/DiffLaser/Diff21/optimdiff21Laser.m	74
ExampleApplications/DiffLaser/Diff21/optimdiff21LaserIntensity.m	74
ExampleApplications/DiffLaser/Diff21/Backup/diff21Laser2DDE.c	72
ExampleApplications/DiffLaser/Diff21/Backup/diff21Laser2Delays.c	72
ExampleApplications/DiffLaser/Diff21/Backup/diff21Laser2HopfEig.c	73
ExampleApplications/DiffLaser/Diff21/Backup/diff21Laser2HopfManifold.c	73
ExampleApplications/DiffLaser/Diff21/Backup/diff21Laser2HopfNV.c	73
ExampleApplications/DiffLaser/Diff21/Backup/diff21Laser2ModFoldManifold.c	73
ExampleApplications/DiffLaser/Diff21/Backup/diff21Laser2ModFoldNV.c	73
ExampleApplications/DiffLaser/Diff21/Backup/diff21Laser2ModHopfManifold.c	73
ExampleApplications/DiffLaser/Diff21/Backup/diff21Laser2ModHopfNV.c	73
ExampleApplications/DiffLaser/Diff21/Backup/diff21LaserDDE.c	70
ExampleApplications/DiffLaser/Diff31/checkJacRank.m	74
ExampleApplications/DiffLaser/Diff31/diff31Laser2DDE.c	74
ExampleApplications/DiffLaser/Diff31/diff31Laser2Delays.c	74
ExampleApplications/DiffLaser/Diff31/diff31Laser2HopfManifold.c	74
ExampleApplications/DiffLaser/Diff31/diff31Laser2HopfNV.c	74
ExampleApplications/DiffLaser/Diff31/diff31Laser3DDE.c	74
ExampleApplications/DiffLaser/Diff31/findHopf.m	72
ExampleApplications/DiffLaser/Diff31/findHopfFromCrit.m	72
ExampleApplications/DiffLaser/Diff31/initdiff31LaserIntensity.m	74
ExampleApplications/DiffLaser/Diff31/optimdiff31Laser.m	74
ExampleApplications/DiffLaser/Diff31/optimdiff31LaserIntensity.m	74
ExampleApplications/DiffLaser/Diff31/optimdiff31LaserIntensityNonRob.m	74
ExampleApplications/DiffLaser/Diff31/optimdiff31LaserIntensityUnStab.m	74
ExampleApplications/DiffLaser/Diff31/TestJacobianRank.m	74
ExampleApplications/DiffLaser/Diff41/diff41Laser2DDE.c	75
ExampleApplications/DiffLaser/Diff41/diff41Laser2Delays.c	75
ExampleApplications/DiffLaser/Diff41/diff41Laser2HopfManifold.c	75
ExampleApplications/DiffLaser/Diff41/diff41Laser2HopfNV.c	75
ExampleApplications/DiffLaser/Diff41/findHopf.m	72
ExampleApplications/DiffLaser/Diff41/findHopfFromCrit.m	72
ExampleApplications/DiffLaser/Diff41/optimdiff41Laser.m	75
ExampleApplications/DiffLaser/Diff41/optimdiff41LaserIntensity.m	75
ExampleApplications/DiffLaser/Diff51/diff51Laser2DDE.c	75
ExampleApplications/DiffLaser/Diff51/diff51Laser2HopfManifold.c	75
ExampleApplications/DiffLaser/Diff51/diff51Laser2HopfNV.c	75
ExampleApplications/DiffLaser/Diff51/optimdiff51Laser.m	75
ExampleApplications/DiffLaser/Diff61/diff61Laser2DDE.c	75
ExampleApplications/DiffLaser/Diff71/diff71Laser2DDE.c	75
ExampleApplications/DiffLaser/Diff81/diff81Laser2DDE.c	75
ExampleApplications/DiffLaser/oneLaser/ddeGatewayPart1.h	78
ExampleApplications/DiffLaser/oneLaser/ddeGatewayPart2.h	78
ExampleApplications/DiffLaser/oneLaser/hopfManiGatewayPart1.h	78
ExampleApplications/DiffLaser/oneLaser/hopfManiGatewayPart2.h	78
ExampleApplications/DiffLaser/oneLaser/hopfNVGatewayPart1.h	78
ExampleApplications/DiffLaser/oneLaser/hopfNVGatewayPart2.h	78
ExampleApplications/DiffLaser/oneLaser/oneLaserDDE.c	78
ExampleApplications/DiffLaser/oneLaser/oneLaserFindHopf.m	78
ExampleApplications/DiffLaser/oneLaser/oneLaserHopfManifold.c	78

ExampleApplications/DiffLaser/oneLaser/oneLaserHopfNV.c	78
ExampleApplications/DiffLaser/oneLaser/oneLaserInitNV.m	78
ExampleApplications/DiffLaser/Test/checkScaling.m	79
ExampleApplications/DiffLaser/Test/eigenvalueZero.m	85
ExampleApplications/DiffLaser/Test/alt/diff7LaserDDEBackup.c	79
ExampleApplications/DiffLaser/Test/alt/diff7LaserDDEwOmegaBackup.c	79
ExampleApplications/DiffLaser/Test/alt/eigsLaserDiodeBackup.m	79
ExampleApplications/DiffLaser/Test/diff01Laser/diff1LaserDDEwOmega.c	79
ExampleApplications/DiffLaser/Test/diff01Laser/diff1LaserWithOmegaHopfManifold.c	79
ExampleApplications/DiffLaser/Test/diff01Laser/diff1LaserWithOmegaHopfNV.c	79
ExampleApplications/DiffLaser/Test/diff01Laser/diff1LaserWithOmegaModFoldManifold.c	79
ExampleApplications/DiffLaser/Test/diff01Laser/diff1LaserWithOmegaModFoldNV.c	79
ExampleApplications/DiffLaser/Test/diff01Laser/diff1LaserWithOmegaModHopfManifold.c	79
ExampleApplications/DiffLaser/Test/diff01Laser/diff1LaserWithOmegaModHopfNV.c	79
ExampleApplications/DiffLaser/Test/diff11Laser/diff11LaserDDEwOmega.c	80
ExampleApplications/DiffLaser/Test/diff11Laser/diff11LaserWithOmegaHopfManifold.c	80
ExampleApplications/DiffLaser/Test/diff11Laser/diff11LaserWithOmegaHopfNV.c	80
ExampleApplications/DiffLaser/Test/diff11Laser/diff11LaserWithOmegaModFoldManifold.c	80
ExampleApplications/DiffLaser/Test/diff11Laser/diff11LaserWithOmegaModFoldNV.c	80
ExampleApplications/DiffLaser/Test/diff11Laser/diff11LaserWithOmegaModHopfManifold.c	80
ExampleApplications/DiffLaser/Test/diff11Laser/diff11LaserWithOmegaModHopfNV.c	80
ExampleApplications/DiffLaser/Test/diff16Laser/diff16LaserDDEwOmega.c	80
ExampleApplications/DiffLaser/Test/diff16Laser/diff16LaserWithOmegaHopfManifold.c	80
ExampleApplications/DiffLaser/Test/diff16Laser/diff16LaserWithOmegaHopfNV.c	80
ExampleApplications/DiffLaser/Test/diff21Laser/diff21LaserDDEwOmega.c	80
ExampleApplications/DiffLaser/Test/diff21Laser/diff21LaserWithOmegaHopfEig.c	80
ExampleApplications/DiffLaser/Test/diff21Laser/diff21LaserWithOmegaHopfManifold.c	81
ExampleApplications/DiffLaser/Test/diff21Laser/diff21LaserWithOmegaHopfNV.c	81
ExampleApplications/DiffLaser/Test/diff21Laser/diff21LaserWithOmegaModFoldManifold.c	81
ExampleApplications/DiffLaser/Test/diff21Laser/diff21LaserWithOmegaModFoldNV.c	81
ExampleApplications/DiffLaser/Test/diff21Laser/diff21LaserWithOmegaModHopfManifold.c	81
ExampleApplications/DiffLaser/Test/diff21Laser/diff21LaserWithOmegaModHopfNV.c	81
ExampleApplications/DiffLaser/Test/diff21Laser/findEigVectTMP.m	81
ExampleApplications/DiffLaser/Test/diff31Laser/diff31LaserDDEwOmega.c	81
ExampleApplications/DiffLaser/Test/diff31Laser/diff31LaserWithOmegaHopfManifold.c	81
ExampleApplications/DiffLaser/Test/diff31Laser/diff31LaserWithOmegaHopfNV.c	82
ExampleApplications/DiffLaser/Test/diff31Laser/diff31LaserWithOmegaModFoldManifold.c	82
ExampleApplications/DiffLaser/Test/diff31Laser/diff31LaserWithOmegaModFoldNV.c	82
ExampleApplications/DiffLaser/Test/diff31Laser/diff31LaserWithOmegaModHopfManifold.c	82
ExampleApplications/DiffLaser/Test/diff31Laser/diff31LaserWithOmegaModHopfNV.c	82
ExampleApplications/DiffLaser/Test/diff31Laser/Backup/diff31LaserDDEwOmega.c	81
ExampleApplications/DiffLaser/Test/diff31Laser/Backup/diff31LaserWithOmegaHopfManifold.c	81
ExampleApplications/DiffLaser/Test/diff31Laser/Backup/diff31LaserWithOmegaHopfNV.c	81
ExampleApplications/DiffLaser/Test/diff31Laser/Backup/diff31LaserWithOmegaModFoldManifold.c	82
ExampleApplications/DiffLaser/Test/diff31Laser/Backup/diff31LaserWithOmegaModFoldNV.c	82
ExampleApplications/DiffLaser/Test/diff31Laser/Backup/diff31LaserWithOmegaModHopfManifold.c	82
ExampleApplications/DiffLaser/Test/diff31Laser/Backup/diff31LaserWithOmegaModHopfNV.c	82
ExampleApplications/DiffLaser/Test/diff41Laser/diff41LaserDDEwOmega.c	82
ExampleApplications/DiffLaser/Test/diff41Laser/diff41LaserWithOmegaHopfManifold.c	82
ExampleApplications/DiffLaser/Test/diff41Laser/diff41LaserWithOmegaHopfNV.c	82
ExampleApplications/DiffLaser/Test/diff41Laser/diff41LaserWithOmegaModFoldManifold.c	83
ExampleApplications/DiffLaser/Test/diff41Laser/diff41LaserWithOmegaModFoldNV.c	83
ExampleApplications/DiffLaser/Test/diff41Laser/diff41LaserWithOmegaModHopfManifold.c	83
ExampleApplications/DiffLaser/Test/diff41Laser/diff41LaserWithOmegaModHopfNV.c	83
ExampleApplications/DiffLaser/Test/diff51Laser/diff51LaserDDEwOmega.c	83
ExampleApplications/DiffLaser/Test/diff51Laser/diff51LaserWithOmegaHopfManifold.c	83
ExampleApplications/DiffLaser/Test/diff51Laser/diff51LaserWithOmegaHopfNV.c	83
ExampleApplications/DiffLaser/Test/diff51Laser/diff51LaserWithOmegaModFoldManifold.c	83

ExampleApplications/DiffLaser/Test/diff51Laser/diff51LaserWithOmegaModFoldNV.c	83
ExampleApplications/DiffLaser/Test/diff51Laser/diff51LaserWithOmegaModHopfManifold.c	83
ExampleApplications/DiffLaser/Test/diff51Laser/diff51LaserWithOmegaModHopfNV.c	83
ExampleApplications/DiffLaser/Test/diff61Laser/diff61LaserDDEwOmega.c	83
ExampleApplications/DiffLaser/Test/diff61Laser/diff61LaserWithOmegaHopfManifold.c	84
ExampleApplications/DiffLaser/Test/diff61Laser/diff61LaserWithOmegaHopfNV.c	84
ExampleApplications/DiffLaser/Test/diff61Laser/diff61LaserWithOmegaModFoldManifold.c	84
ExampleApplications/DiffLaser/Test/diff61Laser/diff61LaserWithOmegaModFoldNV.c	84
ExampleApplications/DiffLaser/Test/diff61Laser/diff61LaserWithOmegaModHopfManifold.c	84
ExampleApplications/DiffLaser/Test/diff61Laser/diff61LaserWithOmegaModHopfNV.c	84
ExampleApplications/DiffLaser/Test/diff71Laser/diff71LaserDDEwOmega.c	84
ExampleApplications/DiffLaser/Test/diff71Laser/diff71LaserWithOmegaHopfManifold.c	84
ExampleApplications/DiffLaser/Test/diff71Laser/diff71LaserWithOmegaHopfNV.c	84
ExampleApplications/DiffLaser/Test/diff71Laser/diff71LaserWithOmegaModFoldManifold.c	84
ExampleApplications/DiffLaser/Test/diff71Laser/diff71LaserWithOmegaModFoldNV.c	84
ExampleApplications/DiffLaser/Test/diff71Laser/diff71LaserWithOmegaModHopfManifold.c	84
ExampleApplications/DiffLaser/Test/diff71Laser/diff71LaserWithOmegaModHopfNV.c	85
ExampleApplications/DiffLaser/Test/diff81Laser/diff81LaserDDEwOmega.c	85
ExampleApplications/DiffLaser/Test/diff81Laser/diff81LaserWithOmegaHopfManifold.c	85
ExampleApplications/DiffLaser/Test/diff81Laser/diff81LaserWithOmegaHopfNV.c	85
ExampleApplications/DiffLaser/Test/diff81Laser/diff81LaserWithOmegaModFoldManifold.c	85
ExampleApplications/DiffLaser/Test/diff81Laser/diff81LaserWithOmegaModFoldNV.c	85
ExampleApplications/DiffLaser/Test/diff81Laser/diff81LaserWithOmegaModHopfManifold.c	85
ExampleApplications/DiffLaser/Test/diff81Laser/diff81LaserWithOmegaModHopfNV.c	85
ExampleApplications/DiffLaser/Test/Systemerschliessung/diff7LaserDDEvisual.c	85
ExampleApplications/DiffLaser/Test/Systemerschliessung/efieldCond.m	85
ExampleApplications/DiffLaser/Test/Systemerschliessung/eigsLaserDiode.m	86
ExampleApplications/DiffLaser/Test/Systemerschliessung/eigsLaserDiode11.m	86
ExampleApplications/DiffLaser/Test/Systemerschliessung/omegaAEasODE.m	86
ExampleApplications/DiffLaser/Test/Systemerschliessung/simLaserDiodeVisual.m	86
ExampleApplications/DiffLaser/Test/Systemerschliessung/symbolicComplex.m	86
ExampleApplications/FCC/CodeGeneration/pcontrolledFCC15DDE.c	87
ExampleApplications/FCC/CodeGeneration/pcontrolledFCC15Delays.c	87
ExampleApplications/FCC/CodeGeneration/pcontrolledFCC15FoldManifold.c	87
ExampleApplications/FCC/CodeGeneration/pcontrolledFCC15FoldNV.c	87
ExampleApplications/FCC/CodeGeneration/pcontrolledFCC15HopfManifold.c	87
ExampleApplications/FCC/CodeGeneration/pcontrolledFCC15HopfNV.c	87
ExampleApplications/FCC/CodeGeneration/pcontrolledFCC15ModFoldManifold.c	88
ExampleApplications/FCC/CodeGeneration/pcontrolledFCC15ModFoldNV.c	88
ExampleApplications/FCC/CodeGeneration/pcontrolledFCC15ModHopfManifold.c	88
ExampleApplications/FCC/CodeGeneration/pcontrolledFCC15ModHopfNV.c	88
ExampleApplications/FCC/l15/compareResults.m	88
ExampleApplications/FCC/l15/convertFold2ModFold.m	88
ExampleApplications/FCC/l15/FCC15HopfNV.c	88
ExampleApplications/FCC/l15/fixedAndFreeAlpha.m	88
ExampleApplications/FCC/l15/noStabOptPControlledFCC15.m	89
ExampleApplications/FCC/l15/noStabOptPControlledFCC15IneqScaled.m	89
ExampleApplications/FCC/l15/pcontrolledFCC15DDE.c	87
ExampleApplications/FCC/l15/pcontrolledFCC15DDE2.c	89
ExampleApplications/FCC/l15/pcontrolledFCC15foldManifold.c	89
ExampleApplications/FCC/l15/pcontrolledFCC15foldManifold2.c	89
ExampleApplications/FCC/l15/pcontrolledFCC15foldNV.c	89
ExampleApplications/FCC/l15/pcontrolledFCC15foldNV2.c	89
ExampleApplications/FCC/l15/pcontrolledFCC15HopfManifold.c	87
ExampleApplications/FCC/l15/pcontrolledFCC15HopfNV.c	88
ExampleApplications/FCC/l15/pcontrolledFCC15HopfNVprint.c	89
ExampleApplications/FCC/l15/pcontrolledFCC15ModFoldManifold.c	88
ExampleApplications/FCC/l15/pcontrolledFCC15ModFoldManifold2.c	89

ExampleApplications/FCC/I15/pcontrolledFCC15ModFoldNV.c	88
ExampleApplications/FCC/I15/pcontrolledFCC15ModFoldNV2.c	89
ExampleApplications/FCC/I15/pcontrolledFCC15ModHopfManifold.c	88
ExampleApplications/FCC/I15/pcontrolledFCC15ModHopfNV.c	88
ExampleApplications/FCC/I15/pcontrolledFCCContFold.m	89
ExampleApplications/FCC/I15/pcontrolledFCCContFoldFromOpt.m	89
ExampleApplications/FCC/I15/pcontrolledFCCContHopf.m	89
ExampleApplications/FCC/I15/pcontrolledFCCContinuationFindExp.m	89
ExampleApplications/FCC/I15/pcontrolledFCCContinuationFromOpt.m	90
ExampleApplications/FCC/I15/pcontrolledFCCContinuationMultPlot.m	90
ExampleApplications/FCC/I15/plotAllFoldDirections.m	90
ExampleApplications/FCC/I15/plotControlledBranchStabilityFCC15.m	90
ExampleApplications/FCC/I15/plotFoldModFoldManiPcontrolledFCC15.m	90
ExampleApplications/FCC/I15/plotModFoldManiPcontrolledFCC15.m	90
ExampleApplications/FCC/I15/plotpcontrolledFCC15HopfManis.m	90
ExampleApplications/FCC/I15/plotStabilitypcontrolledFCC15.m	90
ExampleApplications/FCC/I15/robExpOptPControlledFCC15.m	90
ExampleApplications/FCC/I15/robExpOptPControlledFCC15Ineq.m	90
ExampleApplications/FCC/I15/robExpOptPControlledFCC15IneqScale.m	90
ExampleApplications/FCC/I15/robOptControlledFCC15.m	90
ExampleApplications/FCC/I15/robOptPControlledFCC15.m	90
ExampleApplications/FCC/I15/robOptPControlledFCC15Ineq.m	90
ExampleApplications/FCC/I15/robOptPControlledFCC15IneqScale.m	90
ExampleApplications/FCC/I15/shiftpcontrolledFCCFoldManifoldToModFold.m	91
ExampleApplications/FCC/I15/validatepcontrolledFCCFoldManifold.m	91
ExampleApplications/FCC/I15/validatepcontrolledFCCHopfManifold.m	91
ExampleApplications/FCC/I15/WochenendSkript.m	91
ExampleApplications/FCC/I15/JuliaSimulation/importSim2Plot.m	89
ExampleApplications/TDS2016Population/optimPopMaxRobust.m	91
ExampleApplications/TDS2016Population/optimPopulation.m	91
ExampleApplications/TDS2016Population/optimPopulationFixAlpha.m	91
ExampleApplications/TDS2016Population/populationModelDDE.c	91
ExampleApplications/TDS2016Population/populationModelModFoldMani.c	58
ExampleApplications/TDS2016Population/populationModelModFoldNV.c	58
TestScripts/testAutomatedManifoldAdding.m	91
TestScripts/testDDE.m	91
TestScripts/testDDENLP.m	91
TestScripts/testEqualityConstraint.m	91
TestScripts/testInitPointGrid.m	91
TestScripts/TestManifoldOnLine.m	91
TestScripts/testNominalShifting.m	91
TestScripts/testNVConstraint.m	91
TestScripts/testVariableVector.m	91

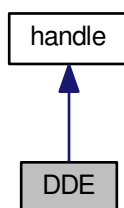
Chapter 6

Class Documentation

6.1 DDE Class Reference

The instances of this class contain information for a [DDE](#) used in [DDENLP](#).

Inheritance diagram for DDE:



Public Member Functions

- function [DDE](#) (in `rhsHandle`, in [delays](#), in `xNomGuess`, in [uncParam](#), in [certOptParam](#))
Class constructor.
- function [getHandles](#) (in `aDDE`, in `type`)
hands back function handles of a [DDE](#) instance

Public Attributes

- Property [foldManiHandle](#)
function handle for fold bifurcation manifold
- Property [modfoldManiHandle](#)
function handle for modified fold bifurcation manifold
- Property [hopfManiHandle](#)

- function handle for hopf bifurcation manifold*
- Property [modhopfManiHandle](#)
function handle for modified hopf bifurcation manifold
- Property [foldNVHandle](#)
function handle for fold bifurcation normal vector system
- Property [modfoldNVHandle](#)
function handle for modified fold bifurcation normal vector system
- Property [hopfNVHandle](#)
function handle for hopf bifurcation normal vector system
- Property [modhopfNVHandle](#)
function handle for modified hopf bifurcation normal vector system

Protected Attributes

- Property [rhs](#)
function handle for right-hand-side of [DDE](#)
- Property [delays](#)
function handle of function for delays
- Property [uncParam](#)
uncertain parameters: object of class [VariableVector](#)
- Property [certOptParam](#)
certain optimization parameters: object of class [VariableVector](#)
- Property [ntau](#)
number of delays

6.1.1 Detailed Description

The instances of this class contain information for a [DDE](#) used in [DDENLP](#).

Those instances collect the relevant data of the [DDE](#) describing the system to be optimized

6.1.2 Constructor & Destructor Documentation

6.1.2.1 function [DDE](#) (in *rhsHandle*, in *delays*, in *xNomGuess*, in *uncParam*, in *certOptParam*)

Class constructor.

This function constructs instances of the class [DDE](#)

Parameters

<i>rhsHandle</i>	function handle for right hand side of DDE
<i>delays</i>	function handle for delays
<i>xNomGuess</i>	Guess for a nominal steady state vector of class VariableVector
<i>uncParam</i>	uncertain nominal parameter vector of class VariableVector
<i>certOptParam</i>	parameter vector with certain optimization variables of class VariableVector

Returns

instance of the [DDE](#) class.

6.1.3 Member Function Documentation**6.1.3.1 function getHandles (in *aDDE*, in *type*)**

hands back function handles of a [DDE](#) instance

Those function handles come in handy for the formulation of normal vector constraints

Parameters

<i>aDDE</i>	function handle for right hand side of DDE
<i>type</i>	function handle for delays

Returns

handleMani function handle with function $g(.)=0$ describing a critical manifold

handleNV function handle with function $h(.)=0$ describing normal vectors on critical manifold

6.1.4 Member Data Documentation**6.1.4.1 Property certOptParam [protected]**

certain optimization parameters: object of class [VariableVector](#)

6.1.4.2 Property delays [protected]

function handle of function for delays

6.1.4.3 Property foldManiHandle

function handle for fold bifurcation manifold

6.1.4.4 Property foldNVHandle

function handle for fold bifurcation normal vector system

6.1.4.5 Property hopfManiHandle

function handle for hopf bifurcation manifold

6.1.4.6 Property `hopfNVHandle`

function handle for hopf bifurcation normal vector system

6.1.4.7 Property `modfoldManiHandle`

function handle for modified fold bifurcation manifold

6.1.4.8 Property `modfoldNVHandle`

function handle for modified fold bifurcation normal vector system

6.1.4.9 Property `modhopfManiHandle`

function handle for modified hopf bifurcation manifold

6.1.4.10 Property `modhopfNVHandle`

function handle for modified hopf bifurcation normal vector system

6.1.4.11 Property `ntau` [protected]

number of delays

6.1.4.12 Property `rhs` [protected]

function handle for right-hand-side of [DDE](#)

6.1.4.13 Property `uncParam` [protected]

uncertain parameters: object of class [VariableVector](#)

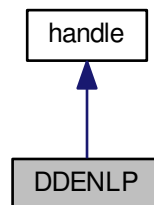
The documentation for this class was generated from the following file:

- [@DDE/DDE.m](#)

6.2 DDENLP Class Reference

this class describes the whole optimization problem for delayed systems

Inheritance diagram for DDENLP:



Public Member Functions

- function `DDENLP` (in `aCostFunction`, in `aDDE`, in `xNomGuess`, in `stateLB`, in `stateUB`, in `uncertParamLB`, in `uncertParamUB`, in `certOptParamLB`, in `certOptParamUB`, in `varargin`)
Class constructor.
- function `initializeStSt` (in `aDDENLP`)
initialize steady state constraint within a `DDENLP` instance
- function `initializeStStRot` (in `aDDENLP`)
initialize rotating steady state constraint within a `DDENLP` instance
- function `addNVCon` (in `aDDENLP`, in `type`, in `augSysHandle`, in `nVSysHandle`, in `xGuess`, in `alphaGuess`, in `pGuess`, in `varargin`)
add a normal vector constraint to the optimization Problem
- function `initNVCons` (in `aDDENLP`, in `nVflipmode`, in `varargin`)
initializes normal vector constraints by using a series of methods of the class `NVConstraint`
- function `moveAwayFromManifolds` (in `aDDENLP`, in `steppingFactor`, in `distanceFactor`, in `in`)
moves the nominal point away from known critical manifolds methods of the class `NVConstraint`
- function `evaluateStatus` (in `aDDENLP`)
evaluates the status of `DDENLP`
- function `concatConstraints` (in `aDDENLP`, in `otherEq`, in `otherIneq`, in `varargin`)
concatenates the various constraints in this `DDENLP` instance for later optimization
- function `compareConnectionNV` (in `aDDENLP`, in `indexCrit`)
compares connection and normal vector
- function `concatInitPoints` (in `aDDENLP`)
concatenates the various variables in this `DDENLP` instance for later optimization
- function `checkConstraints` (in `aDDENLP`)
check if constraints hold for initial point
- function `runOptim` (in `aDDENLP`, in `userDefinedOptions`, in `Aineq`, in `bineq`, in `varargin`)
run optimization of `DDENLP` instance
- function `runOptimMultipleInitPoints` (in `aDDENLP`, in `furtherInput`, in `varargin`)
run optimization of `DDENLP` instance with many different initial points
- function `runOptimWithStabChecks` (in `aDDENLP`, in `nIterBetweenStabChecks`)

- run optimization of [DDENLP](#) instance with intermediate stability checks.*

 - function [runOptimAddingNewManifolds](#) (in [aDDENLP](#), in [nlterBetweenStabChecks](#))

run optimization of [DDENLP](#) instance with intermediate stability checks.
- function [findManifoldPointOnLine](#) (in ignoredArg, in type, in manifoldHandle, in point1, in point2, in maxEig)

look for a manifold point between two given points
- function [deconstructInit](#) (in [aDDENLP](#), in type, in varargin)

reconstruct initial variables from single vector
- function [deconstructOptimum](#) (in [aDDENLP](#))

reconstruct optimal variables from single vector
- function [checkStabilityPoint](#) (in [aDDENLP](#), in point)

calculate eigenvalues at a given point in parameter space
- function [checkStabilityAtVertices](#) (in [aDDENLP](#), in indexlist, in varargin)

calculate stability at vertices of uncertainty region
- function [checkStabilityAtRandom](#) (in [aDDENLP](#), in baseForNumberOfPoints, in seedForRandomNumbers, in varargin)

calculate stability at random points within uncertainty region
- function [ddesd](#) (in [aDDENLP](#), in point, in history, in tspan, in options)

run a simulation of the optimum.

Public Attributes

- Property [aCostFunction](#)

cost function of the main steady state optimization problem
- Property [problemDDE](#)

object of class [DDE](#), contains all relevant [DDE](#) information
- Property [vars](#)

structure containing the cell array of variables, find entries with ind=find(ismember...
- Property [algVarIndex](#)

indexes algebraic variables
- Property [stStCon](#)

steady state constraint class [StStConstraint](#)
- Property [lowerBoxCons](#)

lower boundaries of box constraints
- Property [upperBoxCons](#)

upper boundaries of box constraints
- Property [minDist](#)

parameter uncertainty
- Property [maxAllowedRealPart](#)

the highest eigenvalue real part which is allowed
- Property [allowedEigsInClosedRightHP](#)

accepted eigenvalues in the closed right halfplane (for eigenvalues on the imaginary axis)
- Property [NVCon](#)

normal vector constraints, vector of objects of class [NVConstraint](#)
- Property [allNLEqConstraints](#)

function handle that collects all nonlinear equality constraints
- Property [allNLIeqConstraints](#)

function handle that collects all nonlinear inequality constraints
- Property [fixedUncertParamIndex](#)

contains the indices of parameters that are uncertain, but fixed
- Property [nlcon](#)

- function handle with the nonlinear constraints (inequality and equality)*
- Property [optionsInitEqCons](#)
options for initialization numerics (fsolve)
- Property [optionsInitOptim](#)
options for initialization numerics (auxiliary optimization)
- Property [optionsMainOptim](#)
options for the main optimization
- Property [numMinEig](#)
real number, for DDE-BIFTOOL numerics
- Property [verifyStabPoints](#)
\$\$ {verifyStabPoints}^{nAlpha} \$\$ random points are generated and evaluated
- Property [useLHS](#)
flag for using latin hypercube sample for evaluating the uncertainty region

Protected Attributes

- Property [nX](#)
number of states
- Property [nAlpha](#)
number of uncertain parameters
- Property [nP](#)
number of optimization parameters without uncertainty
- Property [occupiedVars](#)
number of variables in whole optimization problem
- Property [occupiedEqs](#)
number of equality constraints in whole optimization problem
- Property [occupiedIneqs](#)
number of inequality constraints in whole optimization problem
- Property [initVal](#)
initial value, length(initVal)==occupiedVars
- Property [optimVal](#)
optimal value, should be a vector of length(optimVal)==occupiedVars
- Property [optJ](#)
cost at optimum
- Property [exitflag](#)
exitflag of main optimization
- Property [optimOutput](#)
status message of main optimization
- Property [lambda](#)
lagrange multiplier of main optimization
- Property [grad](#)
gradient of cost function of main optimization
- Property [hessian](#)
hessian of lagrange function of main optimization
- Property [status](#)
status of this optimization problem, (key in main description)

6.2.1 Detailed Description

this class describes the whole optimization problem for delayed systems

this class is intended to for the robust stable steady state of delayed systems

status: 1: input initial guess and might not solve the equations 2: parameter is on critical manifold 3: parameter is closest critical point 4: Normal Vector at closest critical point was found 5: connection of closest critical point and nominal point by normal vector verified 6: all nonlinear constraints have been concatenated >6: values were handed back by optimization algorithm

Author

Jonas Otten

Date

18 Jul 2017

6.2.2 Constructor & Destructor Documentation

6.2.2.1 function **DDENLP** (in *aCostFunction*, in *aDDE*, in *xNomGuess*, in *stateLB*, in *stateUB*, in *uncertParamLB*, in *uncertParamUB*, in *certOptParamLB*, in *certOptParamUB*, in *varargin*)

Class constructor.

This function constructs instances of the class [DDENLP](#)

Parameters

<i>aCostFunction</i>	function handle for cost function
<i>aDDE</i>	underlying DDE , instance of class DDE
<i>xNomGuess</i>	collection of instances of VariableVector , nominal state guess
<i>stateLB</i>	lower bounds for states
<i>stateUB</i>	upper bounds for states
<i>uncertParamLB</i>	lower bounds for uncertain optimization parameters
<i>uncertParamUB</i>	upper bounds for uncertain optimization parameters
<i>certOptParamLB</i>	lower bounds for certain optimization parameters (optional input)
<i>certOptParamUB</i>	upper bounds for certain optimization parameters (optional input)

Returns

instance of the [DDENLP](#) class.

6.2.3 Member Function Documentation

6.2.3.1 function **addNVCon** (in *aDDENLP*, in *type*, in *augSysHandle*, in *nVSysHandle*, in *xGuess*, in *alphaGuess*, in *pGuess*, in *varargin*)

add a normal vector constraint to the optimization Problem

Parameters

<i>aDDENLP</i>	instance of DDENLP
<i>type</i>	a string containing the requested manifold type
<i>augSynVsysHandlesHandle</i>	function handle describing the critical manifold
<i>nVsysHandle</i>	function handle describing the normal vectors of the critical manifold
<i>xGuess</i>	guess for critical state, instance of VariableVector
<i>alphaGuess</i>	guess for critical parameters, instance of VariableVector
<i>pGuess</i>	current certain parameters, instance of VariableVector

6.2.3.2 function checkConstraints (in *aDDENLP*)

check if constraints hold for initial point

Parameters

<i>aDDENLP</i>	instance of DDENLP
----------------	------------------------------------

6.2.3.3 function checkStabilityAtRandom (in *aDDENLP*, in *baseForNumberOfPoints*, in *seedForRandomNumbers*, in *varargin*)

calculate stability at random points within uncertainty region

Parameters

<i>aDDENLP</i>	instance of DDENLP class
<i>baseForNumberOfPoints</i>	base for the number of random points
<i>seedForRandomNumbers</i>	(optional) seed for pseudo random number generator

Returns

maxRealPart maximal real part of all eigenvalues

6.2.3.4 function checkStabilityAtVertices (in *aDDENLP*, in *indexlist*, in *varargin*)

calculate stability at vertices of uncertainty region

Parameters

<i>aDDENLP</i>	instance of DDENLP class indexlist index list for selective stability calculation
----------------	---

Returns

maxRealPart maximal real part of all eigenvalues

6.2.3.5 function checkStabilityPoint (in *aDDENLP*, in *point*)

calculate eigenvalues at a given point in parameter space

Parameters

<i>aDDENLP</i>	instance of DDENLP class
<i>point</i>	string describing at which point type the stability shall be evaluated

Returns

maxRealPart maximal real part of all eigenvalues
eigs some rightmost eigenvalues

6.2.3.6 function compareConnectionNV (in *aDDENLP*, in *indexCrit*)

compares connection and normal vector

Parameters

<i>aDDENLP</i>	instance of DDENLP
<i>indexCrit</i>	index of critical point for which comparison takes place

6.2.3.7 function concatConstraints (in *aDDENLP*, in *otherEq*, in *otherIneq*, in *varargin*)

concatenates the various constraints in this [DDENLP](#) instance for later optimization

Parameters

<i>aDDENLP</i>	instance of DDENLP
<i>otherEq</i>	additional equality constraints
<i>otherIneq</i>	additional inequality constraints

6.2.3.8 function concatInitPoints (in *aDDENLP*)

concatenates the various variables in this [DDENLP](#) instance for later optimization

Parameters

<i>aDDENLP</i>	instance of DDENLP
----------------	------------------------------------

6.2.3.9 function ddesd (in *aDDENLP*, in *point*, in *history*, in *tspan*, in *options*)

run a simulation of the optimum.

Overloading of `ddesd`

Parameters

<i>aDDENLP</i>	instance of DDENLP class
<i>point</i>	parameters to use for simulation
<i>history</i>	for simulation (like initial point ODE, but for DDE)
<i>tspan</i>	time spanned by simulation
<i>options</i>	options for solver

Returns

`sol` is solution struct as known from `ode45` etc

6.2.3.10 function `deconstructInit` (in *aDDENLP*, in *type*, in *varargin*)

reconstruct initial variables from single vector

Parameters

<i>aDDENLP</i>	instance of DDENLP class
<i>type</i>	(optional) string describing which points to reconstruct

Returns

(optional) return reconstruction to external variable

6.2.3.11 function `deconstructOptimum` (in *aDDENLP*)

reconstruct optimal variables from single vector

Parameters

<i>aDDENLP</i>	instance of DDENLP class
----------------	--

Returns

(optional) return reconstruction to external variable

6.2.3.12 function `evaluateStatus` (in *aDDENLP*)

evaluates the status of [DDENLP](#)

Parameters

<i>aDDENLP</i>	instance of DDENLP
----------------	------------------------------------

6.2.3.13 function findManifoldPointOnLine (in *ignoredArg*, in *type*, in *manifoldHandle*, in *point1*, in *point2*, in *maxEig*)

look for a manifold point between two given points

Parameters

<i>~</i>	(ignore first input)
<i>type</i>	string of expected manifold type
<i>manifoldHandle</i>	function handle of manifold
<i>point1</i>	first point
<i>point2</i>	second point

Returns

intermediate Point

6.2.3.14 function initializeStSt (in *aDDENLP*)

initialize steady state constraint within a [DDENLP](#) instance

Parameters

<i>aDDENLP</i>	instance of DDENLP
----------------	------------------------------------

6.2.3.15 function initializeStStRot (in *aDDENLP*)

initialize rotating steady state constraint within a [DDENLP](#) instance

Parameters

<i>aDDENLP</i>	instance of DDENLP
----------------	------------------------------------

6.2.3.16 function initNVCons (in *aDDENLP*, in *nVflipmode*, in *varargin*)

initializes normal vector constraints by using a series of methods of the class [NVConstraint](#)

Parameters

<i>aDDENLP</i>	instance of DDENLP
----------------	------------------------------------

6.2.3.17 function moveAwayFromManifolds (in *aDDENLP*, in *steppingFactor*, in *distanceFactor*, in)

moves the nominal point away from known critical manifolds methods of the class [NVConstraint](#)

Parameters

<i>aDDENLP</i>	instance of DDENLP
<i>steppingFactor</i>	(optional) step width of moving nominal point. Smaller value means slower convergence but better numerics, default is 0.7
<i>distanceFactor</i>	(optional) desired final minimal distance
<i>iterations</i>	(optional) number of iterations. Default is 20

6.2.3.18 function runOptim (in *aDDENLP*, in *userDefinedOptions*, in *Aineq*, in *bineq*, in *varargin*)

run optimization of [DDENLP](#) instance

Parameters

<i>aDDENLP</i>	instance of DDENLP
<i>userDefinedOptions</i>	(optional) user defined optimization options
<i>Aineq</i>	(optional) user defined linear inequality constraints
<i>bineq</i>	(optional) user defined linear inequality constraints

6.2.3.19 function runOptimAddingNewManifolds (in *aDDENLP*, in *nIterBetweenStabChecks*)

run optimization of [DDENLP](#) instance with intermediate stability checks.

Algorithm tries to add new critical manifold if one was crossed

Parameters

<i>aDDENLP</i>	instance of DDENLP
<i>nIterBetweenStabChecks</i>	number of iterations between stability checks and potential manifold adding

6.2.3.20 function runOptimMultipleInitPoints (in *aDDENLP*, in *furtherInput*, in *varargin*)

run optimization of [DDENLP](#) instance with many different initial points

Parameters

<i>aDDENLP</i>	instance of DDENLP
<i>furtherInput</i>	(optional) set of initial points to test

6.2.3.21 function runOptimWithStabChecks (in *aDDENLP*, in *nIterBetweenStabChecks*)

run optimization of [DDENLP](#) instance with intermediate stability checks.

Less iterations between stability checks lead to slower optimization, because optimizer has to cold start more frequently

Parameters

<i>aDDENLP</i>	instance of DDENLP
<i>nIterBetweenStabChecks</i>	number of iterations between stability checks

Returns

init initial point of optimization
 final final point of optimization
 maxEig biggest eigenvalue real part after optimization
 eigs rightmost eigenvalues after stability loss

6.2.4 Member Data Documentation

6.2.4.1 Property aCostFunction

cost function of the main steady state optimization problem

6.2.4.2 Property algVarIndex

indexes algebraic variables

6.2.4.3 Property allNLEqConstraints

function handle that collects all nonlinear equality constraints

6.2.4.4 Property allNLIneqConstraints

function handle that collects all nonlinear inequality constraints

6.2.4.5 Property allowedEigsInClosedRightHP

accepted eigenvalues in the closed right halfplane (for eigenvalues on the imaginary axis)

6.2.4.6 Property exitflag `[protected]`

exitflag of main optimization

6.2.4.7 Property fixedUncertParamIndex

contains the indices of parameters that are uncertain, but fixed

6.2.4.8 Property grad [protected]

gradient of cost function of main optimization

6.2.4.9 Property hessian [protected]

hessian of lagrange function of main optimization

6.2.4.10 Property initVal [protected]

initial value, length(initVal)==occupiedVars

6.2.4.11 Property lambda [protected]

lagrange multiplier of main optimization

6.2.4.12 Property lowerBoxCons

lower boundaries of box constraints

6.2.4.13 Property maxAllowedRealPart

the highest eigenvalue real part which is allowed

6.2.4.14 Property minDist

parameter uncertainty

6.2.4.15 Property nAlpha [protected]

number of uncertain parameters

6.2.4.16 Property nlcon

function handle with the nonlinear constraints (inequality and equality)

6.2.4.17 Property nP [protected]

number of optimization parameters without uncertainty

6.2.4.18 Property numMinEig

real number, for DDE-BIFTOOL numerics

6.2.4.19 Property NVCon

normal vector constraints, vector of objects of class [NVConstraint](#)

6.2.4.20 Property nX `[protected]`

number of states

6.2.4.21 Property occupiedEqs `[protected]`

number of equality constraints in whole optimization problem

6.2.4.22 Property occupiedIneqs `[protected]`

number of inequality constraints in whole optimization problem

6.2.4.23 Property occupiedVars `[protected]`

number of variables in whole optimization problem

6.2.4.24 Property optimOutput `[protected]`

status message of main optimization

6.2.4.25 Property optimVal `[protected]`

optimal value, should be a vector of `length(optimVal)==occupiedVars`

6.2.4.26 Property optionsInitEqCons

options for initialization numerics (fsolve)

6.2.4.27 Property optionsInitOptim

options for initialization numerics (auxiliary optimization)

6.2.4.28 Property optionsMainOptim

options for the main optimization

6.2.4.29 Property optJ [protected]

cost at optimum

6.2.4.30 Property problemDDE

object of class [DDE](#), contains all relevant [DDE](#) information

6.2.4.31 Property status [protected]

status of this optimization problem, (key in main description)

6.2.4.32 Property stStCon

steady state constraint class [StStConstraint](#)

6.2.4.33 Property upperBoxCons

lower boundaries of box constraints

6.2.4.34 Property useLHS

flag for using latin hypercube sample for evaluating the uncertainty region

6.2.4.35 Property vars

structure containing the cell array of variables, find entries with ind=find(ismember...

6.2.4.36 Property verifyStabPoints

\$\$ {verifyStabPoints}^{\{nAlpha\}} \$\$ random points are generated and evaluated

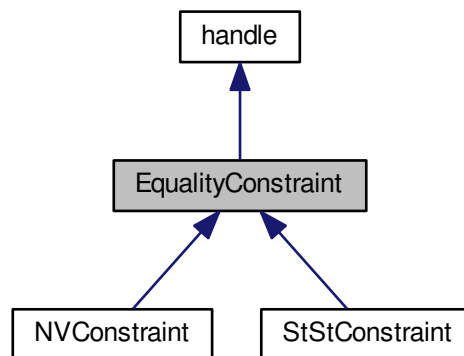
The documentation for this class was generated from the following file:

- [@DDENLP/DDENLP.m](#)

6.3 EqualityConstraint Class Reference

(abstract) class that inherits its properties to equality constraints

Inheritance diagram for EqualityConstraint:



Public Member Functions

- function [EqualityConstraint](#) (in [conFunHandle](#), in [nEqs](#), in [vars](#), in [eqOffset](#))
Class constructor.
- function [shiftIndex](#) (in [anEqCon](#), in [eqShift](#), in [varShift](#))
shift the index of the equations stored in this equality constraint

Public Attributes

- Property [vars](#)
collection of variables of class [VariableVector](#) on which the instance of [EqualityConstraint](#) depends on

Protected Attributes

- Property [conFun](#)
function handle representin the constraint function
- Property [eqIndex](#)
indices of the equation in the superordinate constraint optimization problem
- Property [nEqs](#)
number of equation in this instance of [EqualityConstraint](#)
- Property [status](#)
initialization status of this instance of [EqualityConstraint](#)

6.3.1 Detailed Description

(abstract) class that inherits its properties to equality constraints

The properties are necessary to manage mutiple classes of equality constraints

6.3.2 Constructor & Destructor Documentation

6.3.2.1 function EqualityConstraint (in *conFunHandle*, in *nEqs*, in *vars*, in *eqOffset*)

Class constructor.

This function constructs instances of the class [EqualityConstraint](#)

Parameters

<i>conFunHandle</i>	function handle for equality constraint
<i>nEqs</i>	number of equations in this equality constraint
<i>vars</i>	collection of instances of VariableVector
<i>eqOffset</i>	offset for equation indices

Returns

instance of the [EqualityConstraint](#) class.

6.3.3 Member Function Documentation

6.3.3.1 function shiftIndex (in *anEqCon*, in *eqShift*, in *varShift*)

shift the index of the equations stored in this equality constraint

Parameters

<i>anEqCon</i>	Instance of EqualityConstraint , where the variable equation will be shifted
<i>eqShift</i>	how far the index of equations will be shifted
<i>varShift</i>	how far the index of variables will be shifted

Returns

instance of the [EqualityConstraint](#) class.

6.3.4 Member Data Documentation

6.3.4.1 Property *conFun* `[protected]`

function handle representin the constraint function

6.3.4.2 Property eqIndex [protected]

indices of the equation in the superordinate constraint optimization problem

6.3.4.3 Property nEqs [protected]

number of equation in this instance of [EqualityConstraint](#)

6.3.4.4 Property status [protected]

initialization status of this instance of [EqualityConstraint](#)

6.3.4.5 Property vars

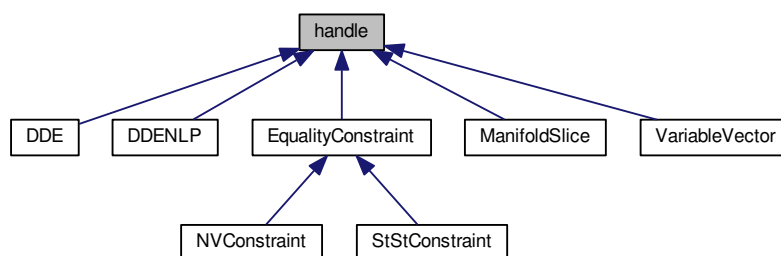
collection of variables of class [VariableVector](#) on which the instance of [EqualityConstraint](#) depends on

The documentation for this class was generated from the following file:

- [@EqualityConstraint/EqualityConstraint.m](#)

6.4 handle Class Reference

Inheritance diagram for handle:



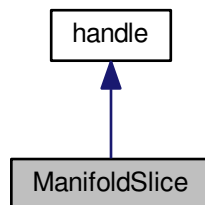
The documentation for this class was generated from the following file:

- [@VariableVector/VariableVector.m](#)

6.5 ManifoldSlice Class Reference

The instances of this class generate visualization data.

Inheritance diagram for ManifoldSlice:



Public Member Functions

- function [ManifoldSlice](#) (in `aNVCon`, in `continParamsInd`, in `varargin`)
Class constructor.
- function [maniContin2DbothDirections](#) (in `aManifoldSlice`, in `n`)
runs numerical continuation in both directions
- function [manifoldContinuation2D](#) (in `aManifoldSlice`, in `direction`)
runs numerical continuation in one directions
- function [plot](#) (in `aManifoldSlice`)
plots results of numerical continuation of critical manifolds
- function [quiver](#) (in `aManifoldSlice`)

Public Attributes

- Property [freeParamIndices](#)
indeces for free parameters for numerical continuation
- Property [nManiPoints](#)
number of steps to take during numerical continuation
- Property [initStepLength](#)
initial step length
- Property [stepLength](#)
step length during numerical continuation
- Property [point](#)
the manifold points resulting form numerical continuation
- Property [eqAugSys](#)
equations defining the manifold
- Property [eqNVSys](#)
normal vector system of manifold
- Property [maxStepLength](#)
bounds step length

- Property [lowerBoxCons](#)
lower bounds to stop numerical continuation
- Property [upperBoxCons](#)
upper bounds to stop numerical continuation
- Property [showStepsFlag](#)
each step is displayed in a figure, if this is set to 1
- Property [debugFlag](#)
enables warnings for debugging if set to 1

6.5.1 Detailed Description

The instances of this class generate visualization data.

Author

Jonas Otten

Date

18 Jul 2017 The instances of this class generate visualization data

This class simplifies visualization of critical manifolds. Two dimensional numerical continuation calculates "slices" of the manifolds, which can be plotted using the methods of this class.

this class is allows easy visualization of optimization results by implementing a quasi-arclength numerical continuation of critical manifolds.

Author

Jonas Otten

Date

18 Jul 2017

6.5.2 Constructor & Destructor Documentation

6.5.2.1 function [ManifoldSlice](#) (in [aNVCon](#), in [continParamsInd](#), in [varargin](#))

Class constructor.

This function constructs instances of the class [ManifoldSlice](#)

Parameters

<i>aNVCon</i>	an instance of the class NVConstraint . Its critical manifold will be visualized
<i>continParamsInd</i>	the index of the parameters used for continuation
<i>varargin</i>	enables to call constructor ommitting continParamsInd

Returns

instance of the [ManifoldSlice](#) class.

6.5.3 Member Function Documentation**6.5.3.1** function maniContin2DbothDirections (in *aManifoldSlice*, in *n*)

runs numerical continuation in both directions

Parameters

<i>aManifoldSlice</i>	instance of this class
<i>n</i>	number of steps to take during continuation

6.5.3.2 function manifoldContinuation2D (in *aManifoldSlice*, in *direction*)

runs numerical continuation in one directions

Parameters

<i>aManifoldSlice</i>	instance of this class
<i>direction</i>	determines direction for continuation

6.5.3.3 function plot (in *aManifoldSlice*)

plots results of numerical continuation of critical manifolds

Parameters

<i>aManifoldSlice</i>	instance of this class
-----------------------	------------------------

Returns

handle vector of plot handles allowing later manipulation of plots

6.5.3.4 function quiver (in *aManifoldSlice*)**6.5.4 Member Data Documentation****6.5.4.1** Property debugFlag

enables warnings for debugging if set to 1

6.5.4.2 Property eqAugSys

equations defining the manifold

6.5.4.3 Property eqNVSys

normal vector system of manifold

6.5.4.4 Property freeParamIndices

indices for free parameters for numerical continuation

6.5.4.5 Property initStepLength

initial step length

6.5.4.6 Property lowerBoxCons

lower bounds to stop numerical continuation

6.5.4.7 Property maxStepLength

bounds step length

6.5.4.8 Property nManiPoints

number of steps to take during numerical continuation

6.5.4.9 Property point

the manifold points resulting from numerical continuation

6.5.4.10 Property showStepsFlag

each step is displayed in a figure, if this is set to 1

6.5.4.11 Property stepLength

step length during numerical continuation

6.5.4.12 Property upperBoxCons

upper bounds to stop numerical continuation

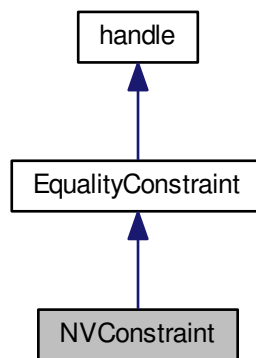
The documentation for this class was generated from the following file:

- @ManifoldSlice/[ManifoldSlice.m](#)

6.6 NVConstraint Class Reference

the instances of this class are objects representing normal vector constraints.

Inheritance diagram for NVConstraint:



Public Member Functions

- function **NVConstraint** (in aDDENLP, in [type](#), in augSysHandle, in nVSysHandle, in nVvars)
Class constructor.
- function **prepareInitialGuess** (in aNVCon, in aVarCollection)
rotates complex eigenvector to make real and imaginary part orthogonal cf.
- function **findManifoldPoint** (in aNVCon, in aVarCollection)
find a point on the critical manifold
- function **findEigVector** (in aNVCon, in aVarCollection)
find an eigenvector of a critical manifold point candidate
- function **findClosestCriticalPoint** (in aNVCon, in alphaNom)
find closest critical point
- function **findNormalVector** (in aNVCon, in alphaNom, in directionMode, in varargin)
find normal vector at given closest critical point
- function **findConnection** (in aNVCon, in alphaNom)
initialize connection constraint
- function **checkSolution** (in aNVCon)
checks if a solution fits the requested manifold type
- function **shiftIndex** (in anEqCon, in eqShift, in varShift)
shift the index of the equations stored in this equality constraint

Public Attributes

- Property [type](#)
critical manifold type, string
- Property [eqAugSys](#)
augmented system equations (manifold), a [EqualityConstraint](#) object
- Property [eqNVSys](#)
normal vector system equations, a [EqualityConstraint](#) object
- Property [eqConnect](#)
connection constraints, a [EqualityConstraint](#) object
- Property [nVarAugSys](#)
number of variables in augmented system
- Property [nVarNVSys](#)
number of variables in normal vector system
- Property [inequalities](#)
function handle of inequalities
- Property [optionsEqConsInit](#)
options for numerical solver
- Property [optionsInitOptim](#)
options for auxiliary optimization
- Property [vars](#)
collection of variables of class [VariableVector](#) on which the instance of [EqualityConstraint](#) depends on

Protected Attributes

- Property [inequalityIndex](#)
index of the inequality constraint of this [NVConstraint](#) within all constraints
- Property [problemDDE](#)
differential equation for calculation of stability
- Property [numMinEig](#)
numerical constant for the ODE approximation of the [DDE](#)
- Property [conFun](#)
function handle representin the constraint function
- Property [eqIndex](#)
indices of the equation in the superordinate constraint optimization problem
- Property [nEqs](#)
number of equation in this instance of [EqualityConstraint](#)
- Property [status](#)
initialization status of this instance of [EqualityConstraint](#)

6.6.1 Detailed Description

the instances of this class are objects representing normal vector constraints.

The procedures initialize those constraints

6.6.2 Constructor & Destructor Documentation

6.6.2.1 function [NVConstraint](#) (in *aDDENLP*, in *type*, in *augSysHandle*, in *nVSysHandle*, in *nVvars*)

Class constructor.

This function constructs instances of the class [NVConstraint](#)

Parameters

<i>aDDENLP</i>	superordinate optimization problem
<i>type</i>	type of critical manifold (string)
<i>augSysHandle</i>	function handle to critical manifold
<i>nVSysHandle</i>	function handle to normal vector system
<i>nVvars</i>	collection of instances of VariableVector

Returns

instance of the [NVConstraint](#) class.

6.6.3 Member Function Documentation

6.6.3.1 function checkSolution (in *aNVCon*)

checks if a solution fits the requested manifold type

Parameters

<i>aNVCon</i>	instance of NVConstraint
---------------	--

Returns

6.6.3.2 function findClosestCriticalPoint (in *aNVCon*, in *alphaNom*)

find closest critical point

Parameters

<i>aNVCon</i>	instance of NVConstraint with a know point on the critical manifold
<i>alphaNom</i>	nominal point stored in an instance of VariableVector

Returns

instance of [NVConstraint](#) with potentially known closest critical point

6.6.3.3 function findConnection (in *aNVCon*, in *alphaNom*)

initialize connection constraint

Parameters

<i>aNVCon</i>	instance of NVConstraint with everything but connection constraint initialized
<i>alphaNom</i>	nominal point stored in an instance of VariableVector

Returns

instance of [NVConstraint](#) with potentially initialized connection constraint

6.6.3.4 function findEigVector (in *aNVCon*, in *aVarCollection*)

find an eigenvector of a critical manifold point candidate

Parameters

<i>aNVCon</i>	instance of NVConstraint that will be initialized
<i>aVarCollection</i>	collection of instances of VariableVector containing numerical values for initial guess

Returns

instance of [NVConstraint](#) with potentially known

6.6.3.5 function findManifoldPoint (in *aNVCon*, in *aVarCollection*)

find a point on the critical manifold

Parameters

<i>aNVCon</i>	instance of NVConstraint that will be initialized
<i>aVarCollection</i>	collection of instances of VariableVector containing numerical values for initial guess

Returns

instance of [NVConstraint](#) with potentially known critical point

6.6.3.6 function findNormalVector (in *aNVCon*, in *alphaNom*, in *directionMode*, in *varargin*)

find normal vector at given closest critical point

Parameters

<i>aNVCon</i>	instance of NVConstraint with known closest critical point
<i>alphaNom</i>	nominal point stored in an instance of VariableVector
<i>directionMode</i>	optional input to manipulate orientation of
<i>varargin</i>	

Returns

instance of [NVConstraint](#) with normal vectors etc. found

6.6.3.7 function prepareInitialGuess (in *aNVCon*, in *aVarCollection*)

rotates complex eigenvector to make real and imaginary part orthogonal cf.

Proof of Lemma 1 in [<https://doi.org/10.1109/CDC.2016.7798469>]

Parameters

<i>aNVCon</i>	instance of NVConstraint that will be initialized
<i>aVarCollection</i>	collection of instances of VariableVector containing numerical values for initial guess

Returns

instance of [NVConstraint](#) with potentially known critical point
collection of instances of [VariableVector](#) with orthogonalized real part and imaginary part of eigenvector

6.6.3.8 function shiftIndex (in *anEqCon*, in *eqShift*, in *varShift*) [inherited]

shift the index of the equations stored in this equality constraint

Parameters

<i>anEqCon</i>	Instance of EqualityConstraint , where the variable equation will be shifted
<i>eqShift</i>	how far the index of equations will be shifted
<i>varShift</i>	how far the index of variables will be shifted

Returns

instance of the [EqualityConstraint](#) class.

6.6.4 Member Data Documentation

6.6.4.1 Property conFun [protected], [inherited]

function handle representing the constraint function

6.6.4.2 Property eqAugSys

augmented system equations (manifold), a [EqualityConstraint](#) object

6.6.4.3 Property eqConnect

connection constraints, a [EqualityConstraint](#) object

6.6.4.4 Property `eqIndex` `[protected]`, `[inherited]`

indices of the equation in the superordinate constraint optimization problem

6.6.4.5 Property `eqNVSys`

normal vector system equations, a [EqualityConstraint](#) object

6.6.4.6 Property `inequalities`

function handle of inequalities

6.6.4.7 Property `inequalityIndex` `[protected]`

index of the inequality constraint of this [NVConstraint](#) within all constraints

6.6.4.8 Property `nEqs` `[protected]`, `[inherited]`

number of equation in this instance of [EqualityConstraint](#)

6.6.4.9 Property `numMinEig` `[protected]`

numerical constant for the ODE approximation of the [DDE](#)

6.6.4.10 Property `nVarAugSys`

number of variables in augmented system

6.6.4.11 Property `nVarNVSys`

number of variables in normal vector system

6.6.4.12 Property `optionsEqConsInit`

options for numerical solver

6.6.4.13 Property `optionsInitOptim`

options for auxiliary optimization

6.6.4.14 Property problemDDE `[protected]`

differential equation for calculation of stability

6.6.4.15 Property status `[protected], [inherited]`

initialization status of this instance of [EqualityConstraint](#)

6.6.4.16 Property type

critical manifold type, string

6.6.4.17 Property vars `[inherited]`

collection of variables of class [VariableVector](#) on which the instance of [EqualityConstraint](#) depends on

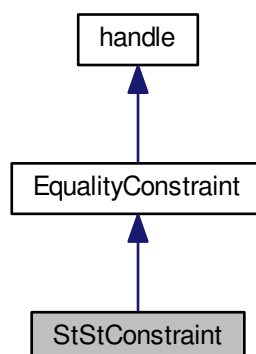
The documentation for this class was generated from the following file:

- [@NVConstraint/NVConstraint.m](#)

6.7 StStConstraint Class Reference

This class describes equality constraints representing the steady state condition for the nominal parameters.

Inheritance diagram for StStConstraint:



Public Member Functions

- function [StStConstraint](#) (in [aDDE](#), in [vars](#))
Class constructor.
- function [initStStConstraint](#) (in [aStStCon](#), in [options](#))
look for a steady state as initialization of this [StStConstraint](#) instance
- function [initStStConstraintRot](#) (in [aStStCon](#), in [options](#))
look for a steady state as initialization of this [StStConstraint](#) instance while allowing rotating coordinates
- function [shiftIndex](#) (in [anEqCon](#), in [eqShift](#), in [varShift](#))
shift the index of the equations stored in this equality constraint

Public Attributes

- Property [vars](#)
collection of variables of class [VariableVector](#) on which the instance of [EqualityConstraint](#) depends on

Protected Attributes

- Property [conFun](#)
function handle representin the constraint function
- Property [eqIndex](#)
indices of the equation in the superordinate constraint optimization problem
- Property [nEqs](#)
number of equation in this instance of [EqualityConstraint](#)
- Property [status](#)
initialization status of this instance of [EqualityConstraint](#)

6.7.1 Detailed Description

This class describes equality constraints representing the steady state condition for the nominal parameters.

It also contains a procedure to initialize the constraint

6.7.2 Constructor & Destructor Documentation

6.7.2.1 function [StStConstraint](#) (in [aDDE](#), in [vars](#))

Class constructor.

This function constructs instances of the class [StStConstraint](#)

Parameters

aDDE	instance of class DDE
vars	collection of instances of VariableVector (at least state, uncertain parameters and certain parameters)

Returns

instance of the [StStConstraint](#) class.

6.7.3 Member Function Documentation**6.7.3.1 function `initStStConstraint` (in *aStStCon*, in *options*)**

look for a steady state as initialization of this [StStConstraint](#) instance

Parameters

<i>aStStCon</i>	instance of StStConstraint which will be initialized
<i>options</i>	options for numerical solver fsolve

Returns

initialized instance of the [StStConstraint](#) class.

6.7.3.2 function `initStStConstraintRot` (in *aStStCon*, in *options*)

look for a steady state as initialization of this [StStConstraint](#) instance while allowing rotating coordinates

Parameters

<i>aStStCon</i>	instance of StStConstraint which will be initialized
<i>options</i>	options for numerical solver fsolve

Returns

initialized instance of the [StStConstraint](#) class.

6.7.3.3 function `shiftIndex` (in *anEqCon*, in *eqShift*, in *varShift*) [inherited]

shift the index of the equations stored in this equality constraint

Parameters

<i>anEqCon</i>	Instance of EqualityConstraint , where the variable equation will be shifted
<i>eqShift</i>	how far the index of equations will be shifted
<i>varShift</i>	how far the index of variables will be shifted

Returns

instance of the [EqualityConstraint](#) class.

6.7.4 Member Data Documentation

6.7.4.1 Property `conFun` `[protected],[inherited]`

function handle representin the constraint function

6.7.4.2 Property `eqIndex` `[protected],[inherited]`

indices of the equation in the superordinate constraint optimization problem

6.7.4.3 Property `nEqs` `[protected],[inherited]`

number of equation in this instance of [EqualityConstraint](#)

6.7.4.4 Property `status` `[protected],[inherited]`

initialization status of this instance of [EqualityConstraint](#)

6.7.4.5 Property `vars` `[inherited]`

collection of variables of class [VariableVector](#) on which the instance of [EqualityConstraint](#) depends on

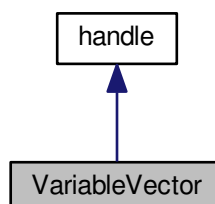
The documentation for this class was generated from the following file:

- @StStConstraint/[StStConstraint.m](#)

6.8 VariableVector Class Reference

The instances of this class contain information for a [VariableVector](#) used in [DDENLP](#).

Inheritance diagram for VariableVector:



Public Member Functions

- function [VariableVector](#) (in [values](#), in [offset](#), in [nameInput](#))
Class constructor.
- function [shiftIndex](#) (in [aVariableVec](#), in [shift](#))
shift the index of the variables stored in this vector
- function [copy](#) (in [aVariableVec](#))
this method creates a copy of an instance of [VariableVector](#), necessary, because the superclass is the pointerlike handle-class

Public Attributes

- Property [values](#)
column vector containing the numerical values of the Variables

Protected Attributes

- Property [names](#)
column array of strings containing the description of the variables
- Property [index](#)
indexes of variable within superordinate concatenation of variables
- Property [nVar](#)
number of variables

6.8.1 Detailed Description

The instances of this class contain information for a [VariableVector](#) used in [DDENLP](#).

Those instances collect human-readable information on the variables (their names and values) as well as the information which is used by other objects to adress those variables.

6.8.2 Constructor & Destructor Documentation

6.8.2.1 function [VariableVector](#) (in [values](#), in [offset](#), in [nameInput](#))

Class constructor.

This function constructs instances of the class [VariableVector](#)

Parameters

values	Description of first parameter
offset	Description of the second parameter
nameInput	Description of the second parameter

Returns

instance of the [VariableVector](#) class.

6.8.3 Member Function Documentation**6.8.3.1 function copy (in *aVariableVec*)**

this method creates a copy of an instance of [VariableVector](#), necessary, because the superclass is the pointerlike handle-class

Parameters

<i>instance</i>	of the VariableVector class.
-----------------	--

Returns

new instance of the [VariableVector](#) class.

6.8.3.2 function shiftIndex (in *aVariableVec*, in *shift*)

shift the index of the variables stored in this vector

Parameters

<i>aVariableVec</i>	Instance of VariableVector , where the variable indices will be shifted
<i>shift</i>	how far the index will be shifted

Returns

instance of the [VariableVector](#) class.

6.8.4 Member Data Documentation**6.8.4.1 Property index** `[protected]`

indexes of variable within superordinate concatenation of variables

6.8.4.2 Property names `[protected]`

column array of strings containing the description of the variables

6.8.4.3 Property nVar `[protected]`

number of variables

6.8.4.4 Property values

column vector containing the numerical values of the Variables

The documentation for this class was generated from the following file:

- @VariableVector/[VariableVector.m](#)

Chapter 7

File Documentation

7.1 @DDE/DDE.m File Reference

The instances of this class contain information for a [DDE](#) used in [DDENLP](#).

Classes

- class [DDE](#)

The instances of this class contain information for a [DDE](#) used in [DDENLP](#).

7.1.1 Detailed Description

The instances of this class contain information for a [DDE](#) used in [DDENLP](#).

Author

Jonas Otten

Date

18 Jul 2017

7.2 @DDENLP/DDENLP.m File Reference

Classes

- class [DDENLP](#)

this class describes the whole optimization problem for delayed systems

7.3 @EqualityConstraint/EqualityConstraint.m File Reference

(abstract) class that inherits its properties to equality constraints

Classes

- class [EqualityConstraint](#)
(abstract) class that inherits its properties to equality constraints

7.3.1 Detailed Description

(abstract) class that inherits its properties to equality constraints

Author

Jonas Otten

Date

18 Jul 2017

7.4 @ManifoldSlice/ManifoldSlice.m File Reference

Classes

- class [ManifoldSlice](#)
The instances of this class generate visualization data.

7.5 @NVConstraint/NVConstraint.m File Reference

the instances of this class are objects representing normal vector constraints.

Classes

- class [NVConstraint](#)
the instances of this class are objects representing normal vector constraints.

7.5.1 Detailed Description

the instances of this class are objects representing normal vector constraints.

The procedures initialize those constraints

Author

Jonas Otten

Date

18 Jul 2017

7.6 @StStConstraint/StStConstraint.m File Reference

class that inherits its properties from EqualityConstraints.

Classes

- class [StStConstraint](#)

This class describes equality constraints representing the steady state condition for the nominal parameters.

7.6.1 Detailed Description

class that inherits its properties from EqualityConstraints.

It represents steady state constraints.

Author

Jonas Otten

Date

18 Jul 2017

7.7 @VariableVector/VariableVector.m File Reference

The instances of this class contain information for a [VariableVector](#) used in [DDENLP](#).

Classes

- class [VariableVector](#)

The instances of this class contain information for a [VariableVector](#) used in [DDENLP](#).

7.7.1 Detailed Description

The instances of this class contain information for a [VariableVector](#) used in [DDENLP](#).

Author

Jonas Otten

Date

18 Jul 2017

7.8 checkStability.m File Reference

Functions

- function [checkStability](#) (in *funcs*, in *parameter*, in *x0*, in *numMinEig*, in *freeParams*)

7.8.1 Function Documentation

7.8.1.1 function [checkStability](#) (in *funcs*, in *parameter*, in *x0*, in *numMinEig*, in *freeParams*)

7.9 circle.m File Reference

Functions

- function [circle](#) (in *radius*, in *x*, in *y*)

7.9.1 Function Documentation

7.9.1.1 function [circle](#) (in *radius*, in *x*, in *y*)

7.10 demo/optimPopulationTestManifoldSlice.m File Reference

7.11 demo/populationModelModFoldMani.c File Reference

7.12 ExampleApplications/TDS2016Population/populationModelModFoldMani.c File Reference

7.13 demo/populationModelModFoldNV.c File Reference

7.14 ExampleApplications/TDS2016Population/populationModelModFoldNV.c File Reference

7.15 ExampleApplications/CDC2016SupplyChain/supplyChainDelays.m File Reference

Functions

- function [supplyChainDelays](#) (in *xx*, in *alpha*, in *ignoredArg*)

7.15.1 Function Documentation

7.15.1.1 function supplyChainDelays (in *xx*, in *alpha*, in *ignoredArg*)

7.16 ExampleApplications/CDC2016SupplyChain/supplyChainHopfMani.c File Reference

7.17 ExampleApplications/CDC2016SupplyChain/supplyChainHopfNV.c File Reference

7.18 ExampleApplications/CDC2016SupplyChain/supplyChainModel.m File Reference

Functions

- function [supplyChainModel](#) (in *x*, in *xtau*, in *alpha*, in *ignoredArg*)

7.18.1 Function Documentation

7.18.1.1 function supplyChainModel (in *x*, in *xtau*, in *alpha*, in *ignoredArg*)

7.19 ExampleApplications/CDC2016SupplyChain/supplyChainOptim.m File Reference

7.20 ExampleApplications/CDC2016SupplyChain/supplyChainOptimAcceptingTwo↔ EigsInRightHP.m File Reference

7.21 ExampleApplications/CoupledCSTRs/allNCSTROptim.m File Reference

7.22 ExampleApplications/CoupledCSTRs/defineROIWeightingNCSTR.m File Reference

7.23 ExampleApplications/CoupledCSTRs/NCSTRdelays.m File Reference

Functions

- function [NCSTRdelays](#) (in *k*, in *ignoredArg*, in *p*)

7.23.1 Function Documentation

7.23.1.1 function NCSTRdelays (in *k*, in *ignoredArg*, in *p*)

7.24 ExampleApplications/CoupledCSTRs/oneCSTRwithFlashSep/oneCSTRoneFlash↔ SepDDE.c File Reference

7.25 ExampleApplications/CoupledCSTRs/oneCSTRwithFlashSep/oneCSTRoneFlash↔ SepHopfMani.c File Reference

7.26 ExampleApplications/CoupledCSTRs/oneCSTRwithFlashSep/oneCSTRoneFlash↔ SepHopfManiNV.c File Reference

7.27 ExampleApplications/CoupledCSTRs/oneCSTRwithFlashSep/oneCSTROptim.m File Reference

Functions

- function [dbstack](#) ()

7.27.1 Function Documentation

7.27.1.1 function dbstack ()

7.28 ExampleApplications/CoupledCSTRs/oneCSTRwithFlashSep/returnOnInvest1.m File Reference

Functions

- function [returnOnInvest1](#) (in *x*)

7.28.1 Function Documentation

7.28.1.1 function returnOnInvest1 (in *x*)

7.29 ExampleApplications/CoupledCSTRs/reactorCost.m File Reference

Functions

- function [reactorCost](#) (in *V*)

7.29.1 Function Documentation

7.29.1.1 function reactorCost (in V)

7.30 ExampleApplications/CoupledCSTRs/setNCSTRBoundaries.m File Reference

7.31 ExampleApplications/CoupledCSTRs/threeCSTRwithFlashSep/returnOnInvest3.m File Reference

Functions

- function [returnOnInvest3](#) (in x)

7.31.1 Function Documentation

7.31.1.1 function returnOnInvest3 (in x)

7.32 ExampleApplications/CoupledCSTRs/threeCSTRwithFlashSep/threeCSTRoneFlashSepDDE.c File Reference

7.33 ExampleApplications/CoupledCSTRs/threeCSTRwithFlashSep/threeCSTRoneFlashSepFoldMani.c File Reference

7.34 ExampleApplications/CoupledCSTRs/threeCSTRwithFlashSep/threeCSTRoneFlashSepFoldManiNV.c File Reference

7.35 ExampleApplications/CoupledCSTRs/threeCSTRwithFlashSep/threeCSTRoneFlashSepHopfMani.c File Reference

7.36 ExampleApplications/CoupledCSTRs/threeCSTRwithFlashSep/threeCSTRoneFlashSepHopfManiNV.c File Reference

7.37 ExampleApplications/CoupledCSTRs/threeCSTRwithFlashSep/threeCSTROptim.m File Reference

Functions

- function [dbstack](#) ()

7.37.1 Function Documentation

7.37.1.1 function `dbstack` ()

7.38 ExampleApplications/CoupledCSTRs/threeCSTRwithFlashSep/threeCSTRStab.m File Reference

7.39 ExampleApplications/CoupledCSTRs/threeCSTRwithFlashSep/tmp.m File Reference

7.40 ExampleApplications/CoupledCSTRs/twoCSTRwithFlashSep/returnOnInvest2.m File Reference

Functions

- function `returnOnInvest2` (in `x`)

7.40.1 Function Documentation

7.40.1.1 function `returnOnInvest2` (in `x`)

7.41 ExampleApplications/CoupledCSTRs/twoCSTRwithFlashSep/twoCSTRoneFlashSepDDE.c File Reference↔

7.42 ExampleApplications/CoupledCSTRs/twoCSTRwithFlashSep/twoCSTRoneFlashSepHopfMani.c File Reference↔

7.43 ExampleApplications/CoupledCSTRs/twoCSTRwithFlashSep/twoCSTRoneFlashSepHopfManiNV.c File Reference↔

7.44 ExampleApplications/CoupledCSTRs/twoCSTRwithFlashSep/twoCSTROptim.m File Reference

Functions

- function `dbstack` ()

7.44.1 Function Documentation

7.44.1.1 function dbstack ()

7.45 ExampleApplications/CoupledLasers/10L_symm/DDE_10L_symm.c File Reference

7.46 ExampleApplications/CoupledLasers/10L_symm/Mod_Fold_10L_symm.c File Reference

7.47 ExampleApplications/CoupledLasers/10L_symm/NV_Mod_Fold_10L_symm.c File Reference

7.48 ExampleApplications/CoupledLasers/10L_symm/optim_10L_symm_ausnutzung_symm.m File Reference

7.49 ExampleApplications/CoupledLasers/2L_symm/Laser_DDE_2L.c File Reference

7.50 ExampleApplications/CoupledLasers/2L_symmOldModel/Laser_DDE_2L.c File Reference

7.51 ExampleApplications/CoupledLasers/2L_symmOldParam/Laser_DDE_2L.c File Reference

7.52 ExampleApplications/CoupledLasers/2L_symm/maniPlotter2L.m File Reference

7.53 ExampleApplications/CoupledLasers/2L_symmOldModel/maniPlotter2L.m File Reference

7.54 ExampleApplications/CoupledLasers/2L_symmOldParam/maniPlotter2L.m File Reference

7.55 ExampleApplications/CoupledLasers/2L_symm/Mod_Fold_2L.c File Reference

7.56 ExampleApplications/CoupledLasers/2L_symmOldModel/Mod_Fold_2L.c File Reference

- 7.57 [ExampleApplications/CoupledLasers/2L_symmOldParam/Mod_Fold_2L.c](#) File Reference
- 7.58 [ExampleApplications/CoupledLasers/2L_symm/NV_Mod_Fold_2L.c](#) File Reference
- 7.59 [ExampleApplications/CoupledLasers/2L_symmOldModel/NV_Mod_Fold_2L.c](#) File Reference
- 7.60 [ExampleApplications/CoupledLasers/2L_symmOldParam/NV_Mod_Fold_2L.c](#) File Reference
- 7.61 [ExampleApplications/CoupledLasers/2L_symm/optim2LRobSync.m](#) File Reference
- 7.62 [ExampleApplications/CoupledLasers/2L_symmOldModel/optim2LRobSync.m](#) File Reference
- 7.63 [ExampleApplications/CoupledLasers/2L_symmOldParam/optim2LRobSync.m](#) File Reference
- 7.64 [ExampleApplications/CoupledLasers/2L_symm/optim2LRobSyncRobPlot.m](#) File Reference
- 7.65 [ExampleApplications/CoupledLasers/2L_symmOldModel/optim2LRobSyncRob↵Plot.m](#) File Reference
- 7.66 [ExampleApplications/CoupledLasers/2L_symmOldParam/optim2LRobSyncRob↵Plot.m](#) File Reference
- 7.67 [ExampleApplications/CoupledLasers/2L_symm/optim2LSync.m](#) File Reference
- 7.68 [ExampleApplications/CoupledLasers/2L_symmOldModel/optim2LSync.m](#) File Reference
- 7.69 [ExampleApplications/CoupledLasers/2L_symmOldParam/optim2LSync.m](#) File Reference

7.70 ExampleApplications/CoupledLasers/2L_symm/plotCostFun.m File Reference

7.71 ExampleApplications/CoupledLasers/2L_symmOldModel/plotCostFun.m File Reference

7.72 ExampleApplications/CoupledLasers/2L_symmOldParam/plotCostFun.m File Reference

7.73 ExampleApplications/CoupledLasers/3L_symm/plotCostFun.m File Reference

7.74 ExampleApplications/CoupledLasers/3L_symmOldParam/plotCostFun.m File Reference

7.75 ExampleApplications/CoupledLasers/2L_symm/unstab_2L_omega_in_p_2_Con.m File Reference

7.76 ExampleApplications/CoupledLasers/2L_symmOldModel/unstab_2L_omega_in_p_2_Con.m File Reference

7.77 ExampleApplications/CoupledLasers/2L_symmOldParam/unstab_2L_omega_in_p_2_Con.m File Reference

7.78 ExampleApplications/CoupledLasers/3L_asymm/Bifurkationen_3L_asymm_fsolve_Schnittgeraden_neu.m File Reference

7.79 ExampleApplications/CoupledLasers/3L_asymmOldParam/Bifurkationen_3L_asymm_fsolve_Schnittgeraden_neu.m File Reference

7.80 ExampleApplications/CoupledLasers/3L_asymm/createParamSpacePlots.m File Reference

7.81 ExampleApplications/CoupledLasers/3L_asymmOldParam/createParamSpacePlots.m File Reference

7.82 ExampleApplications/CoupledLasers/3L_symm/createParamSpacePlots.m File Reference

- 7.83 [ExampleApplications/CoupledLasers/3L_symmOldParam/createParamSpace↔
Plots.m File Reference](#)
- 7.84 [ExampleApplications/CoupledLasers/3L_asymm/DDE_3L_SETUP_1.c File Reference](#)
- 7.85 [ExampleApplications/CoupledLasers/3L_asymmOldParam/DDE_3L_SETUP_1.c File Reference](#)
- 7.86 [ExampleApplications/CoupledLasers/3L_asymm/Mod_Fold_3L_SETUP_1.c File Reference](#)
- 7.87 [ExampleApplications/CoupledLasers/3L_asymmOldParam/Mod_Fold_3L_SETUP↔
_1.c File Reference](#)
- 7.88 [ExampleApplications/CoupledLasers/3L_asymm/Mod_Hopf_3L_SETUP_1.c File Reference](#)
- 7.89 [ExampleApplications/CoupledLasers/3L_asymmOldParam/Mod_Hopf_3L_SETUP↔
_1.c File Reference](#)
- 7.90 [ExampleApplications/CoupledLasers/3L_asymm/Neue_Kostenfunktion/optim_3L↔
_Setup1_Ausarbeitung.m File Reference](#)
- 7.91 [ExampleApplications/CoupledLasers/3L_asymm/optim_3L_Setup1_Ausarbeitung.m File Reference](#)
- 7.92 [ExampleApplications/CoupledLasers/3L_asymmOldParam/optim_3L_Setup1↔
Ausarbeitung.m File Reference](#)
- 7.93 [ExampleApplications/CoupledLasers/3L_asymm/NV_Mod_Fold_3L_SETUP_1.c File Reference](#)
- 7.94 [ExampleApplications/CoupledLasers/3L_asymmOldParam/NV_Mod_Fold_3L_SE↔
TUP_1.c File Reference](#)

7.95 ExampleApplications/CoupledLasers/3L_asymm/NV_Mod_Hopf_3L_SETUP_1.c File Reference

7.96 ExampleApplications/CoupledLasers/3L_asymmOldParam/NV_Mod_Hopf_3L_SETUP_1.c File Reference

7.97 ExampleApplications/CoupledLasers/3L_asymm/optim_3L_Setup1_find_Start.m File Reference

7.98 ExampleApplications/CoupledLasers/3L_asymmOldParam/optim_3L_Setup1_find_Start.m File Reference

7.99 ExampleApplications/CoupledLasers/3L_asymm/prepareManifoldFig.m File Reference

7.100 ExampleApplications/CoupledLasers/3L_asymmOldParam/prepareManifoldFig.m File Reference

7.101 ExampleApplications/CoupledLasers/3L_asymm/Pump_3L_fixed_K_solve_Guete.m File Reference

7.102 ExampleApplications/CoupledLasers/3L_asymmOldParam/Pump_3L_fixed_K_solve_Guete.m File Reference

7.103 ExampleApplications/CoupledLasers/3L_asymm/Syncmanifold_3L_Setup1_fkt.m File Reference

Functions

- function [Syncmanifold_3L_Setup1_fkt](#) (in var, in pump, in omega)

7.103.1 Function Documentation

7.103.1.1 function Syncmanifold_3L_Setup1_fkt (in var, in pump, in omega)

7.104 ExampleApplications/CoupledLasers/3L_asymmOldParam/Syncmanifold_3L_Setup1_fkt.m File Reference

Functions

- function [Syncmanifold_3L_Setup1_fkt](#) (in var, in pump, in omega)

7.104.1 Function Documentation

7.104.1.1 `function Syncmanifold_3L_Setup1_fkt (in var, in pump, in omega)`

7.105 `ExampleApplications/CoupledLasers/3L_asymmOldParam/optim_3L_Setup1_↔
Ausarbeitung_incl_plot.m` File Reference

7.106 `ExampleApplications/CoupledLasers/3L_symm/Bifurkationen_3L_symm_fsolve_↔
_Schnittgeraden.m` File Reference

7.107 `ExampleApplications/CoupledLasers/3L_symmOldParam/Bifurkationen_3L_↔
symm_fsolve_Schnittgeraden.m` File Reference

7.108 `ExampleApplications/CoupledLasers/3L_symm/DDE_3L_symm.c` File Reference

7.109 `ExampleApplications/CoupledLasers/3L_symmOldParam/DDE_3L_symm.c` File Reference

7.110 `ExampleApplications/CoupledLasers/3L_symm/Mod_Fold_3L_symm.c` File Reference

7.111 `ExampleApplications/CoupledLasers/3L_symmOldParam/Mod_Fold_3L_symm.c` File Reference

7.112 `ExampleApplications/CoupledLasers/3L_symm/NV_Mod_Fold_3L_symm.c` File Reference

7.113 `ExampleApplications/CoupledLasers/3L_symmOldParam/NV_Mod_Fold_3L_↔
symm.c` File Reference

7.114 `ExampleApplications/CoupledLasers/3L_symm/optim_3L_symm.m` File Reference

7.115 `ExampleApplications/CoupledLasers/3L_symmOldParam/optim_3L_symm.m` File Reference

7.116 `ExampleApplications/CoupledLasers/3L_symm/Pump_3L_fsolve_Guete.m` File Reference

7.117 ExampleApplications/CoupledLasers/3L_symmOldParam/Pump_3L_fsolve_Guete.m File Reference

7.118 ExampleApplications/CoupledLasers/3L_symm/Syncmanifold_3L_fkt.m File Reference

Functions

- function [Syncmanifold_3L_fkt](#) (in var, in pump)

7.118.1 Function Documentation

7.118.1.1 function Syncmanifold_3L_fkt (in var, in pump)

7.119 ExampleApplications/CoupledLasers/3L_symmOldParam/Syncmanifold_3L_fkt.m File Reference

Functions

- function [Syncmanifold_3L_fkt](#) (in var, in pump)

7.119.1 Function Documentation

7.119.1.1 function Syncmanifold_3L_fkt (in var, in pump)

7.120 ExampleApplications/DiffLaser/CodeGeneration/diff11LaserDDE.c File Reference

7.121 ExampleApplications/DiffLaser/CodeGeneration/diff11LaserDelays.c File Reference

7.122 ExampleApplications/DiffLaser/CodeGeneration/diff11LaserHopfManifold.c File Reference

7.123 ExampleApplications/DiffLaser/CodeGeneration/diff11LaserHopfNV.c File Reference

7.124 ExampleApplications/DiffLaser/CodeGeneration/diff21LaserDDE.c File Reference

- 7.125 [ExampleApplications/DiffLaser/Diff21/Backup/diff21LaserDDE.c](#) File Reference
- 7.126 [ExampleApplications/DiffLaser/Diff21/diff21LaserDDE.c](#) File Reference
- 7.127 [ExampleApplications/DiffLaser/CodeGeneration/diff21LaserDelays.c](#) File Reference
- 7.128 [ExampleApplications/DiffLaser/CodeGeneration/diff21LaserHopfManifold.c](#) File Reference
- 7.129 [ExampleApplications/DiffLaser/CodeGeneration/diff21LaserHopfNV.c](#) File Reference
- 7.130 [ExampleApplications/DiffLaser/CodeGeneration/diff21LaserModFoldManifold.c](#) File Reference
- 7.131 [ExampleApplications/DiffLaser/CodeGeneration/diff21LaserModFoldNV.c](#) File Reference
- 7.132 [ExampleApplications/DiffLaser/CodeGeneration/diff21LaserModHopfManifold.c](#) File Reference
- 7.133 [ExampleApplications/DiffLaser/CodeGeneration/diff21LaserModHopfNV.c](#) File Reference
- 7.134 [ExampleApplications/DiffLaser/CodeGeneration/diff31LaserDDE.c](#) File Reference
- 7.135 [ExampleApplications/DiffLaser/CodeGeneration/diff31LaserDelays.c](#) File Reference
- 7.136 [ExampleApplications/DiffLaser/CodeGeneration/diff31LaserHopfManifold.c](#) File Reference
- 7.137 [ExampleApplications/DiffLaser/CodeGeneration/diff31LaserHopfNV.c](#) File Reference

7.138 ExampleApplications/DiffLaser/CodeGeneration/diff41LaserDDE.c File Reference

7.139 ExampleApplications/DiffLaser/CodeGeneration/diff41LaserDelays.c File Reference

7.140 ExampleApplications/DiffLaser/CodeGeneration/diff41LaserHopfManifold.c File Reference

7.141 ExampleApplications/DiffLaser/CodeGeneration/diff41LaserHopfNV.c File Reference

7.142 ExampleApplications/DiffLaser/CodeGeneration/vonJens/DDE_1L_omega_in_p.c File Reference

7.143 ExampleApplications/DiffLaser/CodeGeneration/vonJens/Mod_Fold_1L.c File Reference

7.144 ExampleApplications/DiffLaser/CodeGeneration/vonJens/NV_Mod_Fold_1L.c File Reference

7.145 ExampleApplications/DiffLaser/CompareDiskretisations.m File Reference

7.146 ExampleApplications/DiffLaser/CompareResults.m File Reference

7.147 ExampleApplications/DiffLaser/continueHopfDiffLaserN.m File Reference

7.148 ExampleApplications/DiffLaser/Diff11/backup/diff11Laser2HopfManifold.c File Reference

7.149 ExampleApplications/DiffLaser/Diff11/diff11Laser2HopfManifold.c File Reference

7.150 ExampleApplications/DiffLaser/Diff11/backup/diff11Laser2HopfNV.c File Reference

7.151 ExampleApplications/DiffLaser/Diff11/diff11Laser2HopfNV.c File Reference

- 7.152 [ExampleApplications/DiffLaser/Diff11/diff11Laser2DDE.c](#) File Reference
- 7.153 [ExampleApplications/DiffLaser/Diff11/diff11Laser2Delays.c](#) File Reference
- 7.154 [ExampleApplications/DiffLaser/Diff11/findHopf.m](#) File Reference
- 7.155 [ExampleApplications/DiffLaser/Diff21/findHopf.m](#) File Reference
- 7.156 [ExampleApplications/DiffLaser/Diff31/findHopf.m](#) File Reference
- 7.157 [ExampleApplications/DiffLaser/Diff41/findHopf.m](#) File Reference
- 7.158 [ExampleApplications/DiffLaser/Diff11/findHopfFromCrit.m](#) File Reference
- 7.159 [ExampleApplications/DiffLaser/Diff21/findHopfFromCrit.m](#) File Reference
- 7.160 [ExampleApplications/DiffLaser/Diff31/findHopfFromCrit.m](#) File Reference
- 7.161 [ExampleApplications/DiffLaser/Diff41/findHopfFromCrit.m](#) File Reference
- 7.162 [ExampleApplications/DiffLaser/Diff11/optimdiff11Laser.m](#) File Reference
- 7.163 [ExampleApplications/DiffLaser/Diff11/optimdiff11LaserIntensity.m](#) File Reference
- 7.164 [ExampleApplications/DiffLaser/Diff11/optimdiffNLaser.m](#) File Reference
- 7.165 [ExampleApplications/DiffLaser/Diff21/Backup/diff21Laser2DDE.c](#) File Reference
- 7.166 [ExampleApplications/DiffLaser/Diff21/diff21Laser2DDE.c](#) File Reference
- 7.167 [ExampleApplications/DiffLaser/Diff21/Backup/diff21Laser2Delays.c](#) File Reference
- 7.168 [ExampleApplications/DiffLaser/Diff21/diff21Laser2Delays.c](#) File Reference

- 7.169 ExampleApplications/DiffLaser/Diff21/Backup/diff21Laser2HopfEig.c File Reference
- 7.170 ExampleApplications/DiffLaser/Diff21/diff21Laser2HopfEig.c File Reference
- 7.171 ExampleApplications/DiffLaser/Diff21/Backup/diff21Laser2HopfManifold.c File Reference
- 7.172 ExampleApplications/DiffLaser/Diff21/diff21Laser2HopfManifold.c File Reference
- 7.173 ExampleApplications/DiffLaser/Diff21/Backup/diff21Laser2HopfNV.c File Reference
- 7.174 ExampleApplications/DiffLaser/Diff21/diff21Laser2HopfNV.c File Reference
- 7.175 ExampleApplications/DiffLaser/Diff21/Backup/diff21Laser2ModFoldManifold.c File Reference
- 7.176 ExampleApplications/DiffLaser/Diff21/diff21Laser2ModFoldManifold.c File Reference
- 7.177 ExampleApplications/DiffLaser/Diff21/Backup/diff21Laser2ModFoldNV.c File Reference
- 7.178 ExampleApplications/DiffLaser/Diff21/diff21Laser2ModFoldNV.c File Reference
- 7.179 ExampleApplications/DiffLaser/Diff21/Backup/diff21Laser2ModHopfManifold.c File Reference
- 7.180 ExampleApplications/DiffLaser/Diff21/diff21Laser2ModHopfManifold.c File Reference
- 7.181 ExampleApplications/DiffLaser/Diff21/Backup/diff21Laser2ModHopfNV.c File Reference

- 7.182 [ExampleApplications/DiffLaser/Diff21/diff21Laser2ModHopfNV.c](#) File Reference
- 7.183 [ExampleApplications/DiffLaser/Diff21/createFigure.m](#) File Reference
- 7.184 [ExampleApplications/DiffLaser/Diff21/optimdiff21Laser.m](#) File Reference
- 7.185 [ExampleApplications/DiffLaser/Diff21/optimdiff21LaserIntensity.m](#) File Reference
- 7.186 [ExampleApplications/DiffLaser/Diff31/checkJacRank.m](#) File Reference
- 7.187 [ExampleApplications/DiffLaser/Diff31/diff31Laser2DDE.c](#) File Reference
- 7.188 [ExampleApplications/DiffLaser/Diff31/diff31Laser2Delays.c](#) File Reference
- 7.189 [ExampleApplications/DiffLaser/Diff31/diff31Laser2HopfManifold.c](#) File Reference
- 7.190 [ExampleApplications/DiffLaser/Diff31/diff31Laser2HopfNV.c](#) File Reference
- 7.191 [ExampleApplications/DiffLaser/Diff31/diff31Laser3DDE.c](#) File Reference
- 7.192 [ExampleApplications/DiffLaser/Diff31/initdiff31LaserIntensity.m](#) File Reference
- 7.193 [ExampleApplications/DiffLaser/Diff31/optimdiff31Laser.m](#) File Reference
- 7.194 [ExampleApplications/DiffLaser/Diff31/optimdiff31LaserIntensity.m](#) File Reference
- 7.195 [ExampleApplications/DiffLaser/Diff31/optimdiff31LaserIntensityNonRob.m](#) File Reference
- 7.196 [ExampleApplications/DiffLaser/Diff31/optimdiff31LaserIntensityUnStab.m](#) File Reference
- 7.197 [ExampleApplications/DiffLaser/Diff31/TestJacobianRank.m](#) File Reference

- 7.198 ExampleApplications/DiffLaser/Diff41/diff41Laser2DDE.c File Reference
- 7.199 ExampleApplications/DiffLaser/Diff41/diff41Laser2Delays.c File Reference
- 7.200 ExampleApplications/DiffLaser/Diff41/diff41Laser2HopfManifold.c File Reference
- 7.201 ExampleApplications/DiffLaser/Diff41/diff41Laser2HopfNV.c File Reference
- 7.202 ExampleApplications/DiffLaser/Diff41/optimdiff41Laser.m File Reference
- 7.203 ExampleApplications/DiffLaser/Diff41/optimdiff41LaserIntensity.m File Reference
- 7.204 ExampleApplications/DiffLaser/Diff51/diff51Laser2DDE.c File Reference
- 7.205 ExampleApplications/DiffLaser/Diff51/diff51Laser2HopfManifold.c File Reference
- 7.206 ExampleApplications/DiffLaser/Diff51/diff51Laser2HopfNV.c File Reference
- 7.207 ExampleApplications/DiffLaser/Diff51/optimdiff51Laser.m File Reference
- 7.208 ExampleApplications/DiffLaser/Diff61/diff61Laser2DDE.c File Reference
- 7.209 ExampleApplications/DiffLaser/Diff71/diff71Laser2DDE.c File Reference
- 7.210 ExampleApplications/DiffLaser/Diff81/diff81Laser2DDE.c File Reference
- 7.211 ExampleApplications/DiffLaser/diffLaser11Optim.m File Reference
- 7.212 ExampleApplications/DiffLaser/diffLaser11Optim2.m File Reference
- 7.213 ExampleApplications/DiffLaser/diffLaser21Optim2.m File Reference
- 7.214 ExampleApplications/DiffLaser/diffLaser31Optim2.m File Reference

- 7.215 [ExampleApplications/DiffLaser/diffLaser61Optim2.m](#) File Reference
- 7.216 [ExampleApplications/DiffLaser/diffLaserCostPlot.m](#) File Reference
- 7.217 [ExampleApplications/DiffLaser/diffLaserCostPlotIntensity.m](#) File Reference
- 7.218 [ExampleApplications/DiffLaser/diffLaserCostPlotIntensityPTheta.m](#) File Reference
- 7.219 [ExampleApplications/DiffLaser/diffLaserNinitNVs.m](#) File Reference
- 7.220 [ExampleApplications/DiffLaser/diffLaserNOptim1.m](#) File Reference
- 7.221 [ExampleApplications/DiffLaser/diffLaserNOptim2.m](#) File Reference
- 7.222 [ExampleApplications/DiffLaser/diffLaserNOptim2WithoutCurrent.m](#) File Reference
- 7.223 [ExampleApplications/DiffLaser/diffLaserNStab.m](#) File Reference
- 7.224 [ExampleApplications/DiffLaser/diffLaserNstabRegions.m](#) File Reference
- 7.225 [ExampleApplications/DiffLaser/diffLaserOptim.m](#) File Reference
- 7.226 [ExampleApplications/DiffLaser/findHopf1.m](#) File Reference
- 7.227 [ExampleApplications/DiffLaser/findHopf41.m](#) File Reference
- 7.228 [ExampleApplications/DiffLaser/findHopfDiffLaserN.m](#) File Reference
- 7.229 [ExampleApplications/DiffLaser/findHopfDiffLaserNAlphaPhi.m](#) File Reference
- 7.230 [ExampleApplications/DiffLaser/findHopfDiffLaserNIntermediate.m](#) File Reference
- 7.231 [ExampleApplications/DiffLaser/findHopfDiffLaserNnoPlot.m](#) File Reference
- 7.232 [ExampleApplications/DiffLaser/findHopfDiffLaserNnoPlotFunction.m](#) File Reference

Functions

- function [findHopfDiffLaserNnoPlotFunction](#) (in Ninput, in pCurrentIn, in varargin)

7.232.1 Function Documentation

7.232.1.1 function findHopfDiffLaserNnoPlotFunction (in *Ninput*, in *pCurrentIn*, in *varargin*)

7.233 ExampleApplications/DiffLaser/findHopfDiffLaserNnoPlotFunction2.m File Reference

Functions

- function [findHopfDiffLaserNnoPlotFunction2](#) (in *Ninput*, in *varargin*)

7.233.1 Function Documentation

7.233.1.1 function findHopfDiffLaserNnoPlotFunction2 (in *Ninput*, in *varargin*)

7.234 ExampleApplications/DiffLaser/findHopfDiffLaserNnoPlotFunction2b.m File Reference

Functions

- function [findHopfDiffLaserNnoPlotFunction2b](#) (in *Ninput*, in *etaln*, in *varargin*)

7.234.1 Function Documentation

7.234.1.1 function findHopfDiffLaserNnoPlotFunction2b (in *Ninput*, in *etaln*, in *varargin*)

7.235 ExampleApplications/DiffLaser/findHopfDiffLaserNnoPlotFunction3.m File Reference

Functions

- function [findHopfDiffLaserNnoPlotFunction3](#) (in *Ninput*, in *varargin*)

7.235.1 Function Documentation

7.235.1.1 `function findHopfDiffLaserNnoPlotFunction3 (in Ninput, in varargin)`

7.236 [ExampleApplications/DiffLaser/findHopfDiffLaserNTest.m](#) File Reference

7.237 [ExampleApplications/DiffLaser/manifoldPlotter.m](#) File Reference

7.238 [ExampleApplications/DiffLaser/manifoldPlotter2.m](#) File Reference

7.239 [ExampleApplications/DiffLaser/manifoldPlotter2b.m](#) File Reference

7.240 [ExampleApplications/DiffLaser/manifoldPlotter3d.m](#) File Reference

7.241 [ExampleApplications/DiffLaser/manifoldPlotter3dSVG.m](#) File Reference

7.242 [ExampleApplications/DiffLaser/oneLaser/ddeGatewayPart1.h](#) File Reference

7.243 [ExampleApplications/DiffLaser/oneLaser/ddeGatewayPart2.h](#) File Reference

7.244 [ExampleApplications/DiffLaser/oneLaser/hopfManiGatewayPart1.h](#) File Reference

7.245 [ExampleApplications/DiffLaser/oneLaser/hopfManiGatewayPart2.h](#) File Reference

7.246 [ExampleApplications/DiffLaser/oneLaser/hopfNVGatewayPart1.h](#) File Reference

7.247 [ExampleApplications/DiffLaser/oneLaser/hopfNVGatewayPart2.h](#) File Reference

7.248 [ExampleApplications/DiffLaser/oneLaser/oneLaserDDE.c](#) File Reference

7.249 [ExampleApplications/DiffLaser/oneLaser/oneLaserFindHopf.m](#) File Reference

7.250 [ExampleApplications/DiffLaser/oneLaser/oneLaserHopfManifold.c](#) File Reference

7.251 [ExampleApplications/DiffLaser/oneLaser/oneLaserHopfNV.c](#) File Reference

7.252 [ExampleApplications/DiffLaser/oneLaser/oneLaserInitNV.m](#) File Reference

7.253 [ExampleApplications/DiffLaser/phaseCondition.m](#) File Reference

Functions

- function [phaseCondition](#) (in point)

7.253.1 Function Documentation

7.253.1.1 function phaseCondition (in *point*)

7.254 ExampleApplications/DiffLaser/simLaser.m File Reference

7.255 ExampleApplications/DiffLaser/Test/alt/diff7LaserDDEBackup.c File Reference

7.256 ExampleApplications/DiffLaser/Test/alt/diff7LaserDDEwOmegaBackup.c File Reference

7.257 ExampleApplications/DiffLaser/Test/alt/eigsLaserDiodeBackup.m File Reference

7.258 ExampleApplications/DiffLaser/Test/checkScaling.m File Reference

7.259 ExampleApplications/DiffLaser/Test/diff01Laser/diff1LaserDDEwOmega.c File Reference

7.260 ExampleApplications/DiffLaser/Test/diff01Laser/diff1LaserWithOmegaHopf↵ Manifold.c File Reference

7.261 ExampleApplications/DiffLaser/Test/diff01Laser/diff1LaserWithOmegaHopfNV.c File Reference

7.262 ExampleApplications/DiffLaser/Test/diff01Laser/diff1LaserWithOmegaModFold↵ Manifold.c File Reference

7.263 ExampleApplications/DiffLaser/Test/diff01Laser/diff1LaserWithOmegaModFold↵ NV.c File Reference

7.264 ExampleApplications/DiffLaser/Test/diff01Laser/diff1LaserWithOmegaModHopf↵ Manifold.c File Reference

7.265 ExampleApplications/DiffLaser/Test/diff01Laser/diff1LaserWithOmegaModHopf↵ NV.c File Reference

- 7.266 `ExampleApplications/DiffLaser/Test/diff11Laser/diff11LaserDDEwOmega.c` File Reference
- 7.267 `ExampleApplications/DiffLaser/Test/diff11Laser/diff11LaserWithOmegaHopf↔
Manifold.c` File Reference
- 7.268 `ExampleApplications/DiffLaser/Test/diff11Laser/diff11LaserWithOmegaHopfNV.c` File Reference
- 7.269 `ExampleApplications/DiffLaser/Test/diff11Laser/diff11LaserWithOmegaModFold↔
Manifold.c` File Reference
- 7.270 `ExampleApplications/DiffLaser/Test/diff11Laser/diff11LaserWithOmegaModFold↔
NV.c` File Reference
- 7.271 `ExampleApplications/DiffLaser/Test/diff11Laser/diff11LaserWithOmegaModHopf↔
Manifold.c` File Reference
- 7.272 `ExampleApplications/DiffLaser/Test/diff11Laser/diff11LaserWithOmegaModHopf↔
NV.c` File Reference
- 7.273 `ExampleApplications/DiffLaser/Test/diff16Laser/diff16LaserDDEwOmega.c` File Reference
- 7.274 `ExampleApplications/DiffLaser/Test/diff16Laser/diff16LaserWithOmegaHopf↔
Manifold.c` File Reference
- 7.275 `ExampleApplications/DiffLaser/Test/diff16Laser/diff16LaserWithOmegaHopfNV.c` File Reference
- 7.276 `ExampleApplications/DiffLaser/Test/diff21Laser/diff21LaserDDEwOmega.c` File Reference
- 7.277 `ExampleApplications/DiffLaser/Test/diff21Laser/diff21LaserWithOmegaHopfEig.c` File Reference

- 7.278 ExampleApplications/DiffLaser/Test/diff21Laser/diff21LaserWithOmegaHopf↔
 Manifold.c File Reference

- 7.279 ExampleApplications/DiffLaser/Test/diff21Laser/diff21LaserWithOmegaHopfNV.c
 File Reference

- 7.280 ExampleApplications/DiffLaser/Test/diff21Laser/diff21LaserWithOmegaModFold↔
 Manifold.c File Reference

- 7.281 ExampleApplications/DiffLaser/Test/diff21Laser/diff21LaserWithOmegaModFold↔
 NV.c File Reference

- 7.282 ExampleApplications/DiffLaser/Test/diff21Laser/diff21LaserWithOmegaModHopf↔
 Manifold.c File Reference

- 7.283 ExampleApplications/DiffLaser/Test/diff21Laser/diff21LaserWithOmegaModHopf↔
 NV.c File Reference

- 7.284 ExampleApplications/DiffLaser/Test/diff21Laser/findEigVectTMP.m File Reference

- 7.285 ExampleApplications/DiffLaser/Test/diff31Laser/Backup/diff31LaserDDEwOmega.c
 File Reference

- 7.286 ExampleApplications/DiffLaser/Test/diff31Laser/diff31LaserDDEwOmega.c File
 Reference

- 7.287 ExampleApplications/DiffLaser/Test/diff31Laser/Backup/diff31LaserWithOmega↔
 HopfManifold.c File Reference

- 7.288 ExampleApplications/DiffLaser/Test/diff31Laser/diff31LaserWithOmegaHopf↔
 Manifold.c File Reference

- 7.289 ExampleApplications/DiffLaser/Test/diff31Laser/Backup/diff31LaserWithOmega↔
 HopfNV.c File Reference

- 7.290 `ExampleApplications/DiffLaser/Test/diff31Laser/diff31LaserWithOmegaHopfNV.c`
File Reference
- 7.291 `ExampleApplications/DiffLaser/Test/diff31Laser/Backup/diff31LaserWithOmega↔
ModFoldManifold.c` File Reference
- 7.292 `ExampleApplications/DiffLaser/Test/diff31Laser/diff31LaserWithOmegaModFold↔
Manifold.c` File Reference
- 7.293 `ExampleApplications/DiffLaser/Test/diff31Laser/Backup/diff31LaserWithOmega↔
ModFoldNV.c` File Reference
- 7.294 `ExampleApplications/DiffLaser/Test/diff31Laser/diff31LaserWithOmegaModFold↔
NV.c` File Reference
- 7.295 `ExampleApplications/DiffLaser/Test/diff31Laser/Backup/diff31LaserWithOmega↔
ModHopfManifold.c` File Reference
- 7.296 `ExampleApplications/DiffLaser/Test/diff31Laser/diff31LaserWithOmegaModHopf↔
Manifold.c` File Reference
- 7.297 `ExampleApplications/DiffLaser/Test/diff31Laser/Backup/diff31LaserWithOmega↔
ModHopfNV.c` File Reference
- 7.298 `ExampleApplications/DiffLaser/Test/diff31Laser/diff31LaserWithOmegaModHopf↔
NV.c` File Reference
- 7.299 `ExampleApplications/DiffLaser/Test/diff41Laser/diff41LaserDDEwOmega.c` File
Reference
- 7.300 `ExampleApplications/DiffLaser/Test/diff41Laser/diff41LaserWithOmegaHopf↔
Manifold.c` File Reference
- 7.301 `ExampleApplications/DiffLaser/Test/diff41Laser/diff41LaserWithOmegaHopfNV.c`
File Reference

- 7.302 ExampleApplications/DiffLaser/Test/diff41Laser/diff41LaserWithOmegaModFold↔
Manifold.c File Reference
- 7.303 ExampleApplications/DiffLaser/Test/diff41Laser/diff41LaserWithOmegaModFold↔
NV.c File Reference
- 7.304 ExampleApplications/DiffLaser/Test/diff41Laser/diff41LaserWithOmegaModHopf↔
Manifold.c File Reference
- 7.305 ExampleApplications/DiffLaser/Test/diff41Laser/diff41LaserWithOmegaModHopf↔
NV.c File Reference
- 7.306 ExampleApplications/DiffLaser/Test/diff51Laser/diff51LaserDDEwOmega.c File
Reference
- 7.307 ExampleApplications/DiffLaser/Test/diff51Laser/diff51LaserWithOmegaHopf↔
Manifold.c File Reference
- 7.308 ExampleApplications/DiffLaser/Test/diff51Laser/diff51LaserWithOmegaHopfNV.c
File Reference
- 7.309 ExampleApplications/DiffLaser/Test/diff51Laser/diff51LaserWithOmegaModFold↔
Manifold.c File Reference
- 7.310 ExampleApplications/DiffLaser/Test/diff51Laser/diff51LaserWithOmegaModFold↔
NV.c File Reference
- 7.311 ExampleApplications/DiffLaser/Test/diff51Laser/diff51LaserWithOmegaModHopf↔
Manifold.c File Reference
- 7.312 ExampleApplications/DiffLaser/Test/diff51Laser/diff51LaserWithOmegaModHopf↔
NV.c File Reference
- 7.313 ExampleApplications/DiffLaser/Test/diff61Laser/diff61LaserDDEwOmega.c File
Reference

- 7.314 [ExampleApplications/DiffLaser/Test/diff61Laser/diff61LaserWithOmegaHopf↔](#)
Manifold.c File Reference
- 7.315 [ExampleApplications/DiffLaser/Test/diff61Laser/diff61LaserWithOmegaHopfNV.c](#)
File Reference
- 7.316 [ExampleApplications/DiffLaser/Test/diff61Laser/diff61LaserWithOmegaModFold↔](#)
Manifold.c File Reference
- 7.317 [ExampleApplications/DiffLaser/Test/diff61Laser/diff61LaserWithOmegaModFold↔](#)
NV.c File Reference
- 7.318 [ExampleApplications/DiffLaser/Test/diff61Laser/diff61LaserWithOmegaModHopf↔](#)
Manifold.c File Reference
- 7.319 [ExampleApplications/DiffLaser/Test/diff61Laser/diff61LaserWithOmegaModHopf↔](#)
NV.c File Reference
- 7.320 [ExampleApplications/DiffLaser/Test/diff71Laser/diff71LaserDDEwOmega.c](#) File
Reference
- 7.321 [ExampleApplications/DiffLaser/Test/diff71Laser/diff71LaserWithOmegaHopf↔](#)
Manifold.c File Reference
- 7.322 [ExampleApplications/DiffLaser/Test/diff71Laser/diff71LaserWithOmegaHopfNV.c](#)
File Reference
- 7.323 [ExampleApplications/DiffLaser/Test/diff71Laser/diff71LaserWithOmegaModFold↔](#)
Manifold.c File Reference
- 7.324 [ExampleApplications/DiffLaser/Test/diff71Laser/diff71LaserWithOmegaModFold↔](#)
NV.c File Reference
- 7.325 [ExampleApplications/DiffLaser/Test/diff71Laser/diff71LaserWithOmegaModHopf↔](#)
Manifold.c File Reference

- 7.326 ExampleApplications/DiffLaser/Test/diff71Laser/diff71LaserWithOmegaModHopfNV.c File Reference ↩
- 7.327 ExampleApplications/DiffLaser/Test/diff81Laser/diff81LaserDDEwOmega.c File Reference
- 7.328 ExampleApplications/DiffLaser/Test/diff81Laser/diff81LaserWithOmegaHopfManifold.c File Reference ↩
- 7.329 ExampleApplications/DiffLaser/Test/diff81Laser/diff81LaserWithOmegaHopfNV.c File Reference
- 7.330 ExampleApplications/DiffLaser/Test/diff81Laser/diff81LaserWithOmegaModFoldManifold.c File Reference ↩
- 7.331 ExampleApplications/DiffLaser/Test/diff81Laser/diff81LaserWithOmegaModFoldNV.c File Reference ↩
- 7.332 ExampleApplications/DiffLaser/Test/diff81Laser/diff81LaserWithOmegaModHopfManifold.c File Reference ↩
- 7.333 ExampleApplications/DiffLaser/Test/diff81Laser/diff81LaserWithOmegaModHopfNV.c File Reference ↩
- 7.334 ExampleApplications/DiffLaser/Test/eigenvalueZero.m File Reference
- 7.335 ExampleApplications/DiffLaser/Test/Systemerschliessung/diff7LaserDDEvisual.c File Reference
- 7.336 ExampleApplications/DiffLaser/Test/Systemerschliessung/efieldCond.m File Reference

Functions

- function [efieldCond](#) (in point)

7.336.1 Function Documentation

7.336.1.1 function `efieldCond` (in *point*)

7.337 ExampleApplications/DiffLaser/Test/Systemerschliessung/eigsLaserDiode.m File Reference

7.338 ExampleApplications/DiffLaser/Test/Systemerschliessung/eigsLaserDiode11.m File Reference

7.339 ExampleApplications/DiffLaser/Test/Systemerschliessung/omegaAEasODE.m File Reference

7.340 ExampleApplications/DiffLaser/Test/Systemerschliessung/simLaserDiodeVisual.m File Reference

7.341 ExampleApplications/DiffLaser/Test/Systemerschliessung/symbolicComplex.m File Reference

7.342 ExampleApplications/DiffLaser/testDiscretization.m File Reference

7.343 ExampleApplications/DiffLaser/testTruncation.m File Reference

7.344 ExampleApplications/DiffLaser/truncManifoldData.m File Reference

Functions

- function [truncManifoldData](#) (in *data*, in *lower*, in *upper*)

7.344.1 Function Documentation

7.344.1.1 function `truncManifoldData` (in *data*, in *lower*, in *upper*)

7.345 ExampleApplications/DiffLaser/uniformlyDiscretizeCurve.m File Reference

Functions

- function [uniformlyDiscretizeCurve](#) (in *curve*, in *nPoints*)

7.345.1 Function Documentation

7.345.1.1 function `uniformlyDiscretizeCurve` (in *curve*, in *nPoints*)

7.346 ExampleApplications/DiffLaser/uniformlyDiscretizeCurveFixedStep.m File Reference

Functions

- function [uniformlyDiscretizeCurveFixedStep](#) (in *curve*, in *pieceLength*)

7.346.1 Function Documentation

7.346.1.1 function `uniformlyDiscretizeCurveFixedStep` (in *curve*, in *pieceLength*)

7.347 ExampleApplications/DiffLaser/Wochenendskript.m File Reference

7.348 ExampleApplications/FCC/CodeGeneration/pcontrolledFCC15DDE.c File Reference

7.349 ExampleApplications/FCC/I15/pcontrolledFCC15DDE.c File Reference

7.350 ExampleApplications/FCC/CodeGeneration/pcontrolledFCC15Delays.c File Reference

7.351 ExampleApplications/FCC/CodeGeneration/pcontrolledFCC15FoldManifold.c File Reference

7.352 ExampleApplications/FCC/CodeGeneration/pcontrolledFCC15FoldNV.c File Reference

7.353 ExampleApplications/FCC/CodeGeneration/pcontrolledFCC15HopfManifold.c File Reference

7.354 ExampleApplications/FCC/I15/pcontrolledFCC15HopfManifold.c File Reference

7.355 ExampleApplications/FCC/CodeGeneration/pcontrolledFCC15HopfNV.c File Reference

- 7.356 [ExampleApplications/FCC/I15/pcontrolledFCC15HopfNV.c](#) File Reference
- 7.357 [ExampleApplications/FCC/CodeGeneration/pcontrolledFCC15ModFoldManifold.c](#) File Reference
- 7.358 [ExampleApplications/FCC/I15/pcontrolledFCC15ModFoldManifold.c](#) File Reference
- 7.359 [ExampleApplications/FCC/CodeGeneration/pcontrolledFCC15ModFoldNV.c](#) File Reference
- 7.360 [ExampleApplications/FCC/I15/pcontrolledFCC15ModFoldNV.c](#) File Reference
- 7.361 [ExampleApplications/FCC/CodeGeneration/pcontrolledFCC15ModHopfManifold.c](#) File Reference
- 7.362 [ExampleApplications/FCC/I15/pcontrolledFCC15ModHopfManifold.c](#) File Reference
- 7.363 [ExampleApplications/FCC/CodeGeneration/pcontrolledFCC15ModHopfNV.c](#) File Reference
- 7.364 [ExampleApplications/FCC/I15/pcontrolledFCC15ModHopfNV.c](#) File Reference
- 7.365 [ExampleApplications/FCC/I15/compareResults.m](#) File Reference
- 7.366 [ExampleApplications/FCC/I15/convertFold2ModFold.m](#) File Reference
- 7.367 [ExampleApplications/FCC/I15/FCC15HopfNV.c](#) File Reference
- 7.368 [ExampleApplications/FCC/I15/fixedAndFreeAlpha.m](#) File Reference

Functions

- function [fixedAndFreeAlpha](#) (in `yMaAlpha`, in `alphaIn`, in `contInd1`, in `contInd2`)

7.368.1 Function Documentation

7.368.1.1 function fixedAndFreeAlpha (in *yMaAlpha*, in *alphaIn*, in *contInd1*, in *contInd2*)

7.369 ExampleApplications/FCC/I15/JuliaSimulation/importSim2Plot.m File Reference

7.370 ExampleApplications/FCC/I15/noStabOptPControlledFCC15.m File Reference

7.371 ExampleApplications/FCC/I15/noStabOptPControlledFCC15IneqScaled.m File Reference

7.372 ExampleApplications/FCC/I15/pcontrolledFCC15DDE2.c File Reference

7.373 ExampleApplications/FCC/I15/pcontrolledFCC15foldManifold.c File Reference

7.374 ExampleApplications/FCC/I15/pcontrolledFCC15foldManifold2.c File Reference

7.375 ExampleApplications/FCC/I15/pcontrolledFCC15foldNV.c File Reference

7.376 ExampleApplications/FCC/I15/pcontrolledFCC15foldNV2.c File Reference

7.377 ExampleApplications/FCC/I15/pcontrolledFCC15HopfNVprint.c File Reference

7.378 ExampleApplications/FCC/I15/pcontrolledFCC15ModFoldManifold2.c File Reference

7.379 ExampleApplications/FCC/I15/pcontrolledFCC15ModFoldNV2.c File Reference

7.380 ExampleApplications/FCC/I15/pcontrolledFCCContFold.m File Reference

7.381 ExampleApplications/FCC/I15/pcontrolledFCCContFoldFromOpt.m File Reference

7.382 ExampleApplications/FCC/I15/pcontrolledFCCContHopf.m File Reference

7.383 ExampleApplications/FCC/I15/pcontrolledFCCContinuationFindExp.m File Reference

- 7.384 [ExampleApplications/FCC/I15/pcontrolledFCCContinuationFromOpt.m](#) File Reference
- 7.385 [ExampleApplications/FCC/I15/pcontrolledFCCContinuationMultPlot.m](#) File Reference
- 7.386 [ExampleApplications/FCC/I15/plotAllFoldDirections.m](#) File Reference
- 7.387 [ExampleApplications/FCC/I15/plotControlledBranchStabilityFCC15.m](#) File Reference
- 7.388 [ExampleApplications/FCC/I15/plotFoldModFoldManiPcontrolledFCC15.m](#) File Reference
- 7.389 [ExampleApplications/FCC/I15/plotModFoldManiPcontrolledFCC15.m](#) File Reference
- 7.390 [ExampleApplications/FCC/I15/plotpcontrolledFCC15HopfManis.m](#) File Reference
- 7.391 [ExampleApplications/FCC/I15/plotStabilitypcontrolledFCC15.m](#) File Reference
- 7.392 [ExampleApplications/FCC/I15/robExpOptPControlledFCC15.m](#) File Reference
- 7.393 [ExampleApplications/FCC/I15/robExpOptPControlledFCC15Ineq.m](#) File Reference
- 7.394 [ExampleApplications/FCC/I15/robExpOptPControlledFCC15IneqScale.m](#) File Reference
- 7.395 [ExampleApplications/FCC/I15/robOptControlledFCC15.m](#) File Reference
- 7.396 [ExampleApplications/FCC/I15/robOptPControlledFCC15.m](#) File Reference
- 7.397 [ExampleApplications/FCC/I15/robOptPControlledFCC15Ineq.m](#) File Reference
- 7.398 [ExampleApplications/FCC/I15/robOptPControlledFCC15IneqScale.m](#) File Reference

- 7.399 ExampleApplications/FCC/I15/shiftpcontrolledFCCFoldManifoldToModFold.m File Reference
- 7.400 ExampleApplications/FCC/I15/validatepcontrolledFCCFoldManifold.m File Reference
- 7.401 ExampleApplications/FCC/I15/validatepcontrolledFCCHopfManifold.m File Reference
- 7.402 ExampleApplications/FCC/I15/WochenendSkript.m File Reference
- 7.403 ExampleApplications/TDS2016Population/optimPopMaxRobust.m File Reference
- 7.404 ExampleApplications/TDS2016Population/optimPopulation.m File Reference
- 7.405 ExampleApplications/TDS2016Population/optimPopulationFixAlpha.m File Reference
- 7.406 ExampleApplications/TDS2016Population/populationModelDDE.c File Reference
- 7.407 TestScripts/testAutomatedManifoldAdding.m File Reference
- 7.408 TestScripts/testDDE.m File Reference
- 7.409 TestScripts/testDDENLP.m File Reference
- 7.410 TestScripts/testEqualityConstraint.m File Reference
- 7.411 TestScripts/testInitPointGrid.m File Reference
- 7.412 TestScripts/TestManifoldOnLine.m File Reference
- 7.413 TestScripts/testNominalShifting.m File Reference
- 7.414 TestScripts/testNVConstraint.m File Reference
- 7.415 TestScripts/testVariableVector.m File Reference
- 7.416 varCollection.m File Reference

creates variable collections for different manifold types

Functions

- function `varCollection` (in *type*, in *offset*, in *x*, in *alpha*, in *p*, in *algVars*)
creates variable collections for different manifold types

7.416.1 Detailed Description

creates variable collections for different manifold types

Author

Jonas Otten

Date

18 Jul 2017

7.416.2 Function Documentation

7.416.2.1 function `varCollection` (in *type*, in *offset*, in *x*, in *alpha*, in *p*, in *algVars*)

creates variable collections for different manifold types

the structs are always created the same, but for some manifolds with empty entries

Parameters

<i>type</i>	requested manifold type
<i>offset</i>	index offset
<i>x</i>	state vector, instance of class <code>VariableVector</code>
<i>alpha</i>	uncertain variables, instance of class <code>VariableVector</code>
<i>p</i>	certain optimization variables, instance of class <code>VariableVector</code>

Return values

<i>vars</i>	variables vector to return
-------------	----------------------------

Index

- aCostFunction
 - DDENLP, [30](#)
- addNVCon
 - DDENLP, [24](#)
- algVarIndex
 - DDENLP, [30](#)
- allNLEqConstraints
 - DDENLP, [30](#)
- allNLIneqConstraints
 - DDENLP, [30](#)
- allowedEigsInClosedRightHP
 - DDENLP, [30](#)
- certOptParam
 - DDE, [19](#)
- checkConstraints
 - DDENLP, [25](#)
- checkSolution
 - NVConstraint, [43](#)
- checkStability
 - checkStability.m, [58](#)
- checkStability.m, [58](#)
 - checkStability, [58](#)
- checkStabilityAtRandom
 - DDENLP, [25](#)
- checkStabilityAtVertices
 - DDENLP, [25](#)
- checkStabilityPoint
 - DDENLP, [25](#)
- circle
 - circle.m, [58](#)
- circle.m, [58](#)
 - circle, [58](#)
- compareConnectionNV
 - DDENLP, [26](#)
- conFun
 - EqualityConstraint, [35](#)
 - NVConstraint, [45](#)
 - StStConstraint, [50](#)
- concatConstraints
 - DDENLP, [26](#)
- concatInitPoints
 - DDENLP, [26](#)
- copy
 - VariableVector, [52](#)
- DDENLP, [21](#)
 - aCostFunction, [30](#)
 - addNVCon, [24](#)
 - algVarIndex, [30](#)
 - allNLEqConstraints, [30](#)
 - allNLIneqConstraints, [30](#)
 - allowedEigsInClosedRightHP, [30](#)
 - checkConstraints, [25](#)
 - checkStabilityAtRandom, [25](#)
 - checkStabilityAtVertices, [25](#)
 - checkStabilityPoint, [25](#)
 - compareConnectionNV, [26](#)
 - concatConstraints, [26](#)
 - concatInitPoints, [26](#)
 - DDENLP, [24](#)
 - ddestd, [26](#)
 - deconstructInit, [27](#)
 - deconstructOptimum, [27](#)
 - evaluateStatus, [27](#)
 - exitflag, [30](#)
 - findManifoldPointOnLine, [28](#)
 - fixedUncertParamIndex, [30](#)
 - grad, [30](#)
 - hessian, [31](#)
 - initNVCons, [28](#)
 - initVal, [31](#)
 - initializeStSt, [28](#)
 - initializeStStRot, [28](#)
 - lambda, [31](#)
 - lowerBoxCons, [31](#)
 - maxAllowedRealPart, [31](#)
 - minDist, [31](#)
 - moveAwayFromManifolds, [28](#)
 - nAlpha, [31](#)
 - NVCon, [32](#)
 - nlcon, [31](#)
 - nP, [31](#)
 - numMinEig, [31](#)
 - nX, [32](#)
 - occupiedEqs, [32](#)
 - occupiedIneqs, [32](#)
 - occupiedVars, [32](#)
 - optimOutput, [32](#)
 - optimVal, [32](#)
 - optionsInitEqCons, [32](#)
 - optionsInitOptim, [32](#)
 - optionsMainOptim, [32](#)
 - optJ, [33](#)
 - problemDDE, [33](#)
 - runOptim, [29](#)
 - runOptimAddingNewManifolds, [29](#)
 - runOptimMultipleInitPoints, [29](#)
 - runOptimWithStabChecks, [29](#)

- stStCon, [33](#)
 - status, [33](#)
 - upperBoxCons, [33](#)
 - useLHS, [33](#)
 - vars, [33](#)
 - verifyStabPoints, [33](#)
- DDE, [17](#)
 - certOptParam, [19](#)
 - DDE, [18](#)
 - delays, [19](#)
 - foldManiHandle, [19](#)
 - foldNVHandle, [19](#)
 - getHandles, [19](#)
 - hopfManiHandle, [19](#)
 - hopfNVHandle, [19](#)
 - modfoldManiHandle, [20](#)
 - modfoldNVHandle, [20](#)
 - modhopfManiHandle, [20](#)
 - modhopfNVHandle, [20](#)
 - ntau, [20](#)
 - rhs, [20](#)
 - uncParam, [20](#)
- dbstack
 - oneCSTROptim.m, [60](#)
 - threeCSTROptim.m, [62](#)
 - twoCSTROptim.m, [63](#)
- ddesd
 - DDENLP, [26](#)
- debugFlag
 - ManifoldSlice, [39](#)
- deconstructInit
 - DDENLP, [27](#)
- deconstructOptimum
 - DDENLP, [27](#)
- delays
 - DDE, [19](#)
- demo/optimPopulationTestManifoldSlice.m, [58](#)
- demo/populationModelModFoldMani.c, [58](#)
- demo/populationModelModFoldNV.c, [58](#)
- efieldCond
 - efieldCond.m, [86](#)
- efieldCond.m
 - efieldCond, [86](#)
- eqAugSys
 - ManifoldSlice, [39](#)
 - NVConstraint, [45](#)
- eqConnect
 - NVConstraint, [45](#)
- eqIndex
 - EqualityConstraint, [35](#)
 - NVConstraint, [45](#)
 - StStConstraint, [50](#)
- eqNVSys
 - ManifoldSlice, [40](#)
 - NVConstraint, [46](#)
- EqualityConstraint, [34](#)
 - conFun, [35](#)
 - eqIndex, [35](#)
 - EqualityConstraint, [35](#)
 - nEqs, [36](#)
 - shiftIndex, [35](#)
 - status, [36](#)
 - vars, [36](#)
- evaluateStatus
 - DDENLP, [27](#)
- ExampleApplications/CDC2016SupplyChain/supply↔ChainDelays.m, [58](#)
- ExampleApplications/CDC2016SupplyChain/supply↔ChainHopfMani.c, [59](#)
- ExampleApplications/CDC2016SupplyChain/supply↔ChainHopfNV.c, [59](#)
- ExampleApplications/CDC2016SupplyChain/supply↔ChainModel.m, [59](#)
- ExampleApplications/CDC2016SupplyChain/supply↔ChainOptim.m, [59](#)
- ExampleApplications/CDC2016SupplyChain/supply↔ChainOptimAcceptingTwoEigsInRightHP.m, [59](#)
- ExampleApplications/CoupledCSTRs/NCSTRdelays.m, [59](#)
- ExampleApplications/CoupledCSTRs/allNCSTR↔Optim.m, [59](#)
- ExampleApplications/CoupledCSTRs/defineROI↔WeightingNCSTR.m, [59](#)
- ExampleApplications/CoupledCSTRs/oneCSTRwith↔FlashSep/oneCSTROptim.m, [60](#)
- ExampleApplications/CoupledCSTRs/oneCSTRwith↔FlashSep/oneCSTRoneFlashSepDDE.c, [60](#)
- ExampleApplications/CoupledCSTRs/oneCSTRwith↔FlashSep/oneCSTRoneFlashSepHopf↔Mani.c, [60](#)
- ExampleApplications/CoupledCSTRs/oneCSTRwith↔FlashSep/oneCSTRoneFlashSepHopfMani↔NV.c, [60](#)
- ExampleApplications/CoupledCSTRs/oneCSTRwith↔FlashSep/returnOnInvest1.m, [60](#)
- ExampleApplications/CoupledCSTRs/reactorCost.m, [60](#)
- ExampleApplications/CoupledCSTRs/setNCSTR↔Boundaries.m, [61](#)
- ExampleApplications/CoupledCSTRs/threeCSTRwith↔FlashSep/returnOnInvest3.m, [61](#)
- ExampleApplications/CoupledCSTRs/threeCSTRwith↔FlashSep/threeCSTROptim.m, [61](#)
- ExampleApplications/CoupledCSTRs/threeCSTRwith↔FlashSep/threeCSTRStab.m, [62](#)
- ExampleApplications/CoupledCSTRs/threeCSTRwith↔FlashSep/threeCSTRoneFlashSepDDE.c, [61](#)
- ExampleApplications/CoupledCSTRs/threeCSTRwith↔FlashSep/threeCSTRoneFlashSepFold↔Mani.c, [61](#)
- ExampleApplications/CoupledCSTRs/threeCSTRwith↔FlashSep/threeCSTRoneFlashSepFold↔ManiNV.c, [61](#)
- ExampleApplications/CoupledCSTRs/threeCSTRwith↔FlashSep/threeCSTRoneFlashSepHopf↔Mani.c, [61](#)

- ExampleApplications/CoupledCSTRs/threeCSTRwith↔
FlashSep/threeCSTRoneFlashSepHopf↔
ManiNV.c, [61](#)
- ExampleApplications/CoupledCSTRs/threeCSTRwith↔
FlashSep/tmp.m, [62](#)
- ExampleApplications/CoupledCSTRs/twoCSTRwith↔
FlashSep/returnOnInvest2.m, [62](#)
- ExampleApplications/CoupledCSTRs/twoCSTRwith↔
FlashSep/twoCSTROptim.m, [62](#)
- ExampleApplications/CoupledCSTRs/twoCSTRwith↔
FlashSep/twoCSTRoneFlashSepDDE.c, [62](#)
- ExampleApplications/CoupledCSTRs/twoCSTRwith↔
FlashSep/twoCSTRoneFlashSepHopfMani.c,
[62](#)
- ExampleApplications/CoupledCSTRs/twoCSTRwith↔
FlashSep/twoCSTRoneFlashSepHopfMani↔
NV.c, [62](#)
- ExampleApplications/CoupledLasers/10L_symm/DD↔
E_10L_symm.c, [63](#)
- ExampleApplications/CoupledLasers/10L_symm/Mod↔
_Fold_10L_symm.c, [63](#)
- ExampleApplications/CoupledLasers/10L_symm/NV↔
Mod_Fold_10L_symm.c, [63](#)
- ExampleApplications/CoupledLasers/10L_symm/optim↔
_10L_symm_ausnutzung_symm.m, [63](#)
- ExampleApplications/CoupledLasers/2L_symm/Laser↔
_DDE_2L.c, [63](#)
- ExampleApplications/CoupledLasers/2L_symm/Mod↔
Fold_2L.c, [63](#)
- ExampleApplications/CoupledLasers/2L_symm/NV↔
Mod_Fold_2L.c, [64](#)
- ExampleApplications/CoupledLasers/2L_symm/mani↔
Plotter2L.m, [63](#)
- ExampleApplications/CoupledLasers/2L_symm/optim2↔
LRobSync.m, [64](#)
- ExampleApplications/CoupledLasers/2L_symm/optim2↔
LRobSyncRobPlot.m, [64](#)
- ExampleApplications/CoupledLasers/2L_symm/optim2↔
LSync.m, [64](#)
- ExampleApplications/CoupledLasers/2L_symm/plot↔
CostFun.m, [65](#)
- ExampleApplications/CoupledLasers/2L_symm/unstab↔
_2L_omega_in_p_2_Con.m, [65](#)
- ExampleApplications/CoupledLasers/2L_symmOld↔
Model/Laser_DDE_2L.c, [63](#)
- ExampleApplications/CoupledLasers/2L_symmOld↔
Model/Mod_Fold_2L.c, [63](#)
- ExampleApplications/CoupledLasers/2L_symmOld↔
Model/NV_Mod_Fold_2L.c, [64](#)
- ExampleApplications/CoupledLasers/2L_symmOld↔
Model/maniPlotter2L.m, [63](#)
- ExampleApplications/CoupledLasers/2L_symmOld↔
Model/optim2LRobSync.m, [64](#)
- ExampleApplications/CoupledLasers/2L_symmOld↔
Model/optim2LRobSyncRobPlot.m, [64](#)
- ExampleApplications/CoupledLasers/2L_symmOld↔
Model/optim2LSync.m, [64](#)
- ExampleApplications/CoupledLasers/2L_symmOld↔
Model/plotCostFun.m, [65](#)
- ExampleApplications/CoupledLasers/2L_symmOld↔
Model/unstab_2L_omega_in_p_2_Con.m, [65](#)
- ExampleApplications/CoupledLasers/2L_symmOld↔
Param/Laser_DDE_2L.c, [63](#)
- ExampleApplications/CoupledLasers/2L_symmOld↔
Param/Mod_Fold_2L.c, [64](#)
- ExampleApplications/CoupledLasers/2L_symmOld↔
Param/NV_Mod_Fold_2L.c, [64](#)
- ExampleApplications/CoupledLasers/2L_symmOld↔
Param/maniPlotter2L.m, [63](#)
- ExampleApplications/CoupledLasers/2L_symmOld↔
Param/optim2LRobSync.m, [64](#)
- ExampleApplications/CoupledLasers/2L_symmOld↔
Param/optim2LRobSyncRobPlot.m, [64](#)
- ExampleApplications/CoupledLasers/2L_symmOld↔
Param/optim2LSync.m, [64](#)
- ExampleApplications/CoupledLasers/2L_symmOld↔
Param/plotCostFun.m, [65](#)
- ExampleApplications/CoupledLasers/2L_symmOld↔
Param/unstab_2L_omega_in_p_2_Con.m, [65](#)
- ExampleApplications/CoupledLasers/3L_asymm/↔
Bifurkationen_3L_asymm_fsolve_Schnittgeraden↔
_neu.m, [65](#)
- ExampleApplications/CoupledLasers/3L_asymm/DD↔
E_3L_SETUP_1.c, [66](#)
- ExampleApplications/CoupledLasers/3L_asymm/Mod↔
_Fold_3L_SETUP_1.c, [66](#)
- ExampleApplications/CoupledLasers/3L_asymm/Mod↔
_Hopf_3L_SETUP_1.c, [66](#)
- ExampleApplications/CoupledLasers/3L_asymm/NV↔
Mod_Fold_3L_SETUP_1.c, [66](#)
- ExampleApplications/CoupledLasers/3L_asymm/NV↔
Mod_Hopf_3L_SETUP_1.c, [67](#)
- ExampleApplications/CoupledLasers/3L_asymm/↔
Neue_Kostenfunktion/optim_3L_Setup1↔
Ausarbeitung.m, [66](#)
- ExampleApplications/CoupledLasers/3L_asymm/↔
Pump_3L_fixed_K_fsolve_Guete.m, [67](#)
- ExampleApplications/CoupledLasers/3L_asymm/↔
Syncmanifold_3L_Setup1_fkt.m, [67](#)
- ExampleApplications/CoupledLasers/3L_asymm/create↔
ParamSpacePlots.m, [65](#)
- ExampleApplications/CoupledLasers/3L_asymm/optim↔
_3L_Setup1_Ausarbeitung.m, [66](#)
- ExampleApplications/CoupledLasers/3L_asymm/optim↔
_3L_Setup1_find_Start.m, [67](#)
- ExampleApplications/CoupledLasers/3L_asymm/prepare↔
ManifoldFig.m, [67](#)
- ExampleApplications/CoupledLasers/3L_asymmOld↔
Param/Bifurkationen_3L_asymm_fsolve↔
Schnittgeraden_neu.m, [65](#)
- ExampleApplications/CoupledLasers/3L_asymmOld↔
Param/DDE_3L_SETUP_1.c, [66](#)
- ExampleApplications/CoupledLasers/3L_asymmOld↔
Param/Mod_Fold_3L_SETUP_1.c, [66](#)
- ExampleApplications/CoupledLasers/3L_asymmOld↔
Param/Mod_Hopf_3L_SETUP_1.c, [66](#)

- ExampleApplications/CoupledLasers/3L_asymmOld↔
Param/NV_Mod_Fold_3L_SETUP_1.c, 66
- ExampleApplications/CoupledLasers/3L_asymmOld↔
Param/NV_Mod_Hopf_3L_SETUP_1.c, 67
- ExampleApplications/CoupledLasers/3L_asymmOld↔
Param/Pump_3L_fixed_K_fsolve_Guete.m, 67
- ExampleApplications/CoupledLasers/3L_asymmOld↔
Param/Syncmanifold_3L_Setup1_fkt.m, 67
- ExampleApplications/CoupledLasers/3L_asymmOld↔
Param/createParamSpacePlots.m, 65
- ExampleApplications/CoupledLasers/3L_asymmOld↔
Param/optim_3L_Setup1_Ausarbeitung.m, 66
- ExampleApplications/CoupledLasers/3L_asymmOld↔
Param/optim_3L_Setup1_Ausarbeitung_↔
incl_plot.m, 68
- ExampleApplications/CoupledLasers/3L_asymmOld↔
Param/optim_3L_Setup1_find_Start.m, 67
- ExampleApplications/CoupledLasers/3L_asymmOld↔
Param/prepareManifoldFig.m, 67
- ExampleApplications/CoupledLasers/3L_symm/↔
Bifurkationen_3L_symm_fsolve_Schnittgeraden.↔
m, 68
- ExampleApplications/CoupledLasers/3L_symm/DDE↔
_3L_symm.c, 68
- ExampleApplications/CoupledLasers/3L_symm/Mod_↔
Fold_3L_symm.c, 68
- ExampleApplications/CoupledLasers/3L_symm/NV_↔
Mod_Fold_3L_symm.c, 68
- ExampleApplications/CoupledLasers/3L_symm/↔
Pump_3L_fsolve_Guete.m, 68
- ExampleApplications/CoupledLasers/3L_symm/↔
Syncmanifold_3L_fkt.m, 69
- ExampleApplications/CoupledLasers/3L_symm/create↔
ParamSpacePlots.m, 65
- ExampleApplications/CoupledLasers/3L_symm/optim↔
_3L_symm.m, 68
- ExampleApplications/CoupledLasers/3L_symm/plot↔
CostFun.m, 65
- ExampleApplications/CoupledLasers/3L_symmOld↔
Param/Bifurkationen_3L_symm_fsolve_↔
Schnittgeraden.m, 68
- ExampleApplications/CoupledLasers/3L_symmOld↔
Param/DDE_3L_symm.c, 68
- ExampleApplications/CoupledLasers/3L_symmOld↔
Param/Mod_Fold_3L_symm.c, 68
- ExampleApplications/CoupledLasers/3L_symmOld↔
Param/NV_Mod_Fold_3L_symm.c, 68
- ExampleApplications/CoupledLasers/3L_symmOld↔
Param/Pump_3L_fsolve_Guete.m, 69
- ExampleApplications/CoupledLasers/3L_symmOld↔
Param/Syncmanifold_3L_fkt.m, 69
- ExampleApplications/CoupledLasers/3L_symmOld↔
Param/createParamSpacePlots.m, 66
- ExampleApplications/CoupledLasers/3L_symmOld↔
Param/optim_3L_symm.m, 68
- ExampleApplications/CoupledLasers/3L_symmOld↔
Param/plotCostFun.m, 65
- ExampleApplications/DiffLaser/CodeGeneration/diff11↔
LaserDDE.c, 69
- ExampleApplications/DiffLaser/CodeGeneration/diff11↔
LaserDelays.c, 69
- ExampleApplications/DiffLaser/CodeGeneration/diff11↔
LaserHopfManifold.c, 69
- ExampleApplications/DiffLaser/CodeGeneration/diff11↔
LaserHopfNV.c, 69
- ExampleApplications/DiffLaser/CodeGeneration/diff21↔
LaserDDE.c, 69
- ExampleApplications/DiffLaser/CodeGeneration/diff21↔
LaserDelays.c, 70
- ExampleApplications/DiffLaser/CodeGeneration/diff21↔
LaserHopfManifold.c, 70
- ExampleApplications/DiffLaser/CodeGeneration/diff21↔
LaserHopfNV.c, 70
- ExampleApplications/DiffLaser/CodeGeneration/diff21↔
LaserModFoldManifold.c, 70
- ExampleApplications/DiffLaser/CodeGeneration/diff21↔
LaserModFoldNV.c, 70
- ExampleApplications/DiffLaser/CodeGeneration/diff21↔
LaserModHopfManifold.c, 70
- ExampleApplications/DiffLaser/CodeGeneration/diff21↔
LaserModHopfNV.c, 70
- ExampleApplications/DiffLaser/CodeGeneration/diff31↔
LaserDDE.c, 70
- ExampleApplications/DiffLaser/CodeGeneration/diff31↔
LaserDelays.c, 70
- ExampleApplications/DiffLaser/CodeGeneration/diff31↔
LaserHopfManifold.c, 70
- ExampleApplications/DiffLaser/CodeGeneration/diff31↔
LaserHopfNV.c, 70
- ExampleApplications/DiffLaser/CodeGeneration/diff41↔
LaserDDE.c, 71
- ExampleApplications/DiffLaser/CodeGeneration/diff41↔
LaserDelays.c, 71
- ExampleApplications/DiffLaser/CodeGeneration/diff41↔
LaserHopfManifold.c, 71
- ExampleApplications/DiffLaser/CodeGeneration/diff41↔
LaserHopfNV.c, 71
- ExampleApplications/DiffLaser/CodeGeneration/von↔
Jens/DDE_1L_omega_in_p.c, 71
- ExampleApplications/DiffLaser/CodeGeneration/von↔
Jens/Mod_Fold_1L.c, 71
- ExampleApplications/DiffLaser/CodeGeneration/von↔
Jens/NV_Mod_Fold_1L.c, 71
- ExampleApplications/DiffLaser/CompareDiskretisations.↔
m, 71
- ExampleApplications/DiffLaser/CompareResults.m, 71
- ExampleApplications/DiffLaser/Diff11/backup/diff11↔
Laser2HopfManifold.c, 71
- ExampleApplications/DiffLaser/Diff11/backup/diff11↔
Laser2HopfNV.c, 71
- ExampleApplications/DiffLaser/Diff11/diff11Laser2DD↔
E.c, 72
- ExampleApplications/DiffLaser/Diff11/diff11Laser2↔
Delays.c, 72
- ExampleApplications/DiffLaser/Diff11/diff11Laser2↔

- [HopfManifold.c](#), 71
[ExampleApplications/DiffLaser/Diff11/diff11Laser2](#)↔
[HopfNV.c](#), 71
[ExampleApplications/DiffLaser/Diff11/findHopf.m](#), 72
[ExampleApplications/DiffLaser/Diff11/findHopfFrom](#)↔
[Crit.m](#), 72
[ExampleApplications/DiffLaser/Diff11/optimdiff11](#)↔
[Laser.m](#), 72
[ExampleApplications/DiffLaser/Diff11/optimdiff11](#)↔
[LaserIntensity.m](#), 72
[ExampleApplications/DiffLaser/Diff11/optimdiffN](#)↔
[Laser.m](#), 72
[ExampleApplications/DiffLaser/Diff21/Backup/diff21](#)↔
[Laser2DDE.c](#), 72
[ExampleApplications/DiffLaser/Diff21/Backup/diff21](#)↔
[Laser2Delays.c](#), 72
[ExampleApplications/DiffLaser/Diff21/Backup/diff21](#)↔
[Laser2HopfEig.c](#), 73
[ExampleApplications/DiffLaser/Diff21/Backup/diff21](#)↔
[Laser2HopfManifold.c](#), 73
[ExampleApplications/DiffLaser/Diff21/Backup/diff21](#)↔
[Laser2HopfNV.c](#), 73
[ExampleApplications/DiffLaser/Diff21/Backup/diff21](#)↔
[Laser2ModFoldManifold.c](#), 73
[ExampleApplications/DiffLaser/Diff21/Backup/diff21](#)↔
[Laser2ModFoldNV.c](#), 73
[ExampleApplications/DiffLaser/Diff21/Backup/diff21](#)↔
[Laser2ModHopfManifold.c](#), 73
[ExampleApplications/DiffLaser/Diff21/Backup/diff21](#)↔
[Laser2ModHopfNV.c](#), 73
[ExampleApplications/DiffLaser/Diff21/Backup/diff21](#)↔
[LaserDDE.c](#), 70
[ExampleApplications/DiffLaser/Diff21/createFigure.m](#),
74
[ExampleApplications/DiffLaser/Diff21/diff21Laser2DD](#)↔
[E.c](#), 72
[ExampleApplications/DiffLaser/Diff21/diff21Laser2](#)↔
[Delays.c](#), 72
[ExampleApplications/DiffLaser/Diff21/diff21Laser2](#)↔
[HopfEig.c](#), 73
[ExampleApplications/DiffLaser/Diff21/diff21Laser2](#)↔
[HopfManifold.c](#), 73
[ExampleApplications/DiffLaser/Diff21/diff21Laser2](#)↔
[HopfNV.c](#), 73
[ExampleApplications/DiffLaser/Diff21/diff21Laser2](#)↔
[ModFoldManifold.c](#), 73
[ExampleApplications/DiffLaser/Diff21/diff21Laser2](#)↔
[ModFoldNV.c](#), 73
[ExampleApplications/DiffLaser/Diff21/diff21Laser2](#)↔
[ModHopfManifold.c](#), 73
[ExampleApplications/DiffLaser/Diff21/diff21Laser2](#)↔
[ModHopfNV.c](#), 74
[ExampleApplications/DiffLaser/Diff21/diff21LaserDD](#)↔
[E.c](#), 70
[ExampleApplications/DiffLaser/Diff21/findHopf.m](#), 72
[ExampleApplications/DiffLaser/Diff21/findHopfFrom](#)↔
[Crit.m](#), 72
[ExampleApplications/DiffLaser/Diff21/optimdiff21](#)↔
[Laser.m](#), 74
[ExampleApplications/DiffLaser/Diff21/optimdiff21](#)↔
[LaserIntensity.m](#), 74
[ExampleApplications/DiffLaser/Diff31/TestJacobian](#)↔
[Rank.m](#), 74
[ExampleApplications/DiffLaser/Diff31/checkJacRank.m](#),
74
[ExampleApplications/DiffLaser/Diff31/diff31Laser2DD](#)↔
[E.c](#), 74
[ExampleApplications/DiffLaser/Diff31/diff31Laser2](#)↔
[Delays.c](#), 74
[ExampleApplications/DiffLaser/Diff31/diff31Laser2](#)↔
[HopfManifold.c](#), 74
[ExampleApplications/DiffLaser/Diff31/diff31Laser2](#)↔
[HopfNV.c](#), 74
[ExampleApplications/DiffLaser/Diff31/diff31Laser3DD](#)↔
[E.c](#), 74
[ExampleApplications/DiffLaser/Diff31/findHopf.m](#), 72
[ExampleApplications/DiffLaser/Diff31/findHopfFrom](#)↔
[Crit.m](#), 72
[ExampleApplications/DiffLaser/Diff31/initdiff31Laser](#)↔
[Intensity.m](#), 74
[ExampleApplications/DiffLaser/Diff31/optimdiff31](#)↔
[Laser.m](#), 74
[ExampleApplications/DiffLaser/Diff31/optimdiff31](#)↔
[LaserIntensity.m](#), 74
[ExampleApplications/DiffLaser/Diff31/optimdiff31](#)↔
[LaserIntensityNonRob.m](#), 74
[ExampleApplications/DiffLaser/Diff31/optimdiff31](#)↔
[LaserIntensityUnStab.m](#), 74
[ExampleApplications/DiffLaser/Diff41/diff41Laser2DD](#)↔
[E.c](#), 75
[ExampleApplications/DiffLaser/Diff41/diff41Laser2](#)↔
[Delays.c](#), 75
[ExampleApplications/DiffLaser/Diff41/diff41Laser2](#)↔
[HopfManifold.c](#), 75
[ExampleApplications/DiffLaser/Diff41/diff41Laser2](#)↔
[HopfNV.c](#), 75
[ExampleApplications/DiffLaser/Diff41/findHopf.m](#), 72
[ExampleApplications/DiffLaser/Diff41/findHopfFrom](#)↔
[Crit.m](#), 72
[ExampleApplications/DiffLaser/Diff41/optimdiff41](#)↔
[Laser.m](#), 75
[ExampleApplications/DiffLaser/Diff41/optimdiff41](#)↔
[LaserIntensity.m](#), 75
[ExampleApplications/DiffLaser/Diff51/diff51Laser2DD](#)↔
[E.c](#), 75
[ExampleApplications/DiffLaser/Diff51/diff51Laser2](#)↔
[HopfManifold.c](#), 75
[ExampleApplications/DiffLaser/Diff51/diff51Laser2](#)↔
[HopfNV.c](#), 75
[ExampleApplications/DiffLaser/Diff51/optimdiff51](#)↔
[Laser.m](#), 75
[ExampleApplications/DiffLaser/Diff61/diff61Laser2DD](#)↔
[E.c](#), 75
[ExampleApplications/DiffLaser/Diff71/diff71Laser2DD](#)↔
[E.c](#), 75
[ExampleApplications/DiffLaser/Diff81/diff81Laser2DD](#)↔

- E.c, 75
- ExampleApplications/DiffLaser/Test/Systemerschliessung/diff7↔ LaserDDEvisual.c, 85
- ExampleApplications/DiffLaser/Test/Systemerschliessung/efield↔ Cond.m, 85
- ExampleApplications/DiffLaser/Test/Systemerschliessung/eigs↔ LaserDiode.m, 86
- ExampleApplications/DiffLaser/Test/Systemerschliessung/eigs↔ LaserDiode11.m, 86
- ExampleApplications/DiffLaser/Test/Systemerschliessung/omega↔ AEasODE.m, 86
- ExampleApplications/DiffLaser/Test/Systemerschliessung/sim↔ LaserDiodeVisual.m, 86
- ExampleApplications/DiffLaser/Test/Systemerschliessung/symbolic↔ Complex.m, 86
- ExampleApplications/DiffLaser/Test/alt/diff7LaserDD↔ EBackup.c, 79
- ExampleApplications/DiffLaser/Test/alt/diff7LaserDD↔ EwOmegaBackup.c, 79
- ExampleApplications/DiffLaser/Test/alt/eigsLaser↔ DiodeBackup.m, 79
- ExampleApplications/DiffLaser/Test/checkScaling.m, 79
- ExampleApplications/DiffLaser/Test/diff01Laser/diff1↔ LaserDDEwOmega.c, 79
- ExampleApplications/DiffLaser/Test/diff01Laser/diff1↔ LaserWithOmegaHopfManifold.c, 79
- ExampleApplications/DiffLaser/Test/diff01Laser/diff1↔ LaserWithOmegaHopfNV.c, 79
- ExampleApplications/DiffLaser/Test/diff01Laser/diff1↔ LaserWithOmegaModFoldManifold.c, 79
- ExampleApplications/DiffLaser/Test/diff01Laser/diff1↔ LaserWithOmegaModFoldNV.c, 79
- ExampleApplications/DiffLaser/Test/diff01Laser/diff1↔ LaserWithOmegaModHopfManifold.c, 79
- ExampleApplications/DiffLaser/Test/diff01Laser/diff1↔ LaserWithOmegaModHopfNV.c, 79
- ExampleApplications/DiffLaser/Test/diff11Laser/diff11↔ LaserDDEwOmega.c, 80
- ExampleApplications/DiffLaser/Test/diff11Laser/diff11↔ LaserWithOmegaHopfManifold.c, 80
- ExampleApplications/DiffLaser/Test/diff11Laser/diff11↔ LaserWithOmegaHopfNV.c, 80
- ExampleApplications/DiffLaser/Test/diff11Laser/diff11↔ LaserWithOmegaModFoldManifold.c, 80
- ExampleApplications/DiffLaser/Test/diff11Laser/diff11↔ LaserWithOmegaModFoldNV.c, 80
- ExampleApplications/DiffLaser/Test/diff11Laser/diff11↔ LaserWithOmegaModHopfManifold.c, 80
- ExampleApplications/DiffLaser/Test/diff11Laser/diff11↔ LaserWithOmegaModHopfNV.c, 80
- ExampleApplications/DiffLaser/Test/diff16Laser/diff16↔ LaserDDEwOmega.c, 80
- ExampleApplications/DiffLaser/Test/diff16Laser/diff16↔ LaserWithOmegaHopfManifold.c, 80
- ExampleApplications/DiffLaser/Test/diff16Laser/diff16↔ LaserWithOmegaHopfNV.c, 80
- ExampleApplications/DiffLaser/Test/diff21Laser/diff21↔ LaserDDEwOmega.c, 80
- ExampleApplications/DiffLaser/Test/diff21Laser/diff21↔ LaserWithOmegaHopfEig.c, 80
- ExampleApplications/DiffLaser/Test/diff21Laser/diff21↔ LaserWithOmegaHopfManifold.c, 81
- ExampleApplications/DiffLaser/Test/diff21Laser/diff21↔ LaserWithOmegaHopfNV.c, 81
- ExampleApplications/DiffLaser/Test/diff21Laser/diff21↔ LaserWithOmegaModFoldManifold.c, 81
- ExampleApplications/DiffLaser/Test/diff21Laser/diff21↔ LaserWithOmegaModFoldNV.c, 81
- ExampleApplications/DiffLaser/Test/diff21Laser/diff21↔ LaserWithOmegaModHopfManifold.c, 81
- ExampleApplications/DiffLaser/Test/diff21Laser/diff21↔ LaserWithOmegaModHopfNV.c, 81
- ExampleApplications/DiffLaser/Test/diff21Laser/find↔ EigVectTMP.m, 81
- ExampleApplications/DiffLaser/Test/diff31Laser/↔ Backup/diff31LaserDDEwOmega.c, 81
- ExampleApplications/DiffLaser/Test/diff31Laser/↔ Backup/diff31LaserWithOmegaHopfManifold.c, 81
- ExampleApplications/DiffLaser/Test/diff31Laser/↔ Backup/diff31LaserWithOmegaHopfNV.c, 81
- ExampleApplications/DiffLaser/Test/diff31Laser/↔ Backup/diff31LaserWithOmegaModFold↔ Manifold.c, 82
- ExampleApplications/DiffLaser/Test/diff31Laser/↔ Backup/diff31LaserWithOmegaModFoldNV.c, 82
- ExampleApplications/DiffLaser/Test/diff31Laser/↔ Backup/diff31LaserWithOmegaModHopf↔ Manifold.c, 82
- ExampleApplications/DiffLaser/Test/diff31Laser/↔ Backup/diff31LaserWithOmegaModHopf↔ NV.c, 82
- ExampleApplications/DiffLaser/Test/diff31Laser/diff31↔ LaserDDEwOmega.c, 81
- ExampleApplications/DiffLaser/Test/diff31Laser/diff31↔ LaserWithOmegaHopfManifold.c, 81
- ExampleApplications/DiffLaser/Test/diff31Laser/diff31↔ LaserWithOmegaHopfNV.c, 82
- ExampleApplications/DiffLaser/Test/diff31Laser/diff31↔ LaserWithOmegaModFoldManifold.c, 82
- ExampleApplications/DiffLaser/Test/diff31Laser/diff31↔ LaserWithOmegaModFoldNV.c, 82
- ExampleApplications/DiffLaser/Test/diff31Laser/diff31↔ LaserWithOmegaModHopfManifold.c, 82
- ExampleApplications/DiffLaser/Test/diff31Laser/diff31↔ LaserWithOmegaModHopfNV.c, 82
- ExampleApplications/DiffLaser/Test/diff41Laser/diff41↔ LaserDDEwOmega.c, 82
- ExampleApplications/DiffLaser/Test/diff41Laser/diff41↔ LaserWithOmegaHopfManifold.c, 82
- ExampleApplications/DiffLaser/Test/diff41Laser/diff41↔ LaserWithOmegaHopfNV.c, 82
- ExampleApplications/DiffLaser/Test/diff41Laser/diff41↔ LaserWithOmegaModFoldManifold.c, 83
- ExampleApplications/DiffLaser/Test/diff41Laser/diff41↔

- LaserWithOmegaModFoldNV.c, 83
- ExampleApplications/DiffLaser/Test/diff41Laser/diff41↔
LaserWithOmegaModHopfManifold.c, 83
- ExampleApplications/DiffLaser/Test/diff41Laser/diff41↔
LaserWithOmegaModHopfNV.c, 83
- ExampleApplications/DiffLaser/Test/diff51Laser/diff51↔
LaserDDEwOmega.c, 83
- ExampleApplications/DiffLaser/Test/diff51Laser/diff51↔
LaserWithOmegaHopfManifold.c, 83
- ExampleApplications/DiffLaser/Test/diff51Laser/diff51↔
LaserWithOmegaHopfNV.c, 83
- ExampleApplications/DiffLaser/Test/diff51Laser/diff51↔
LaserWithOmegaModFoldManifold.c, 83
- ExampleApplications/DiffLaser/Test/diff51Laser/diff51↔
LaserWithOmegaModFoldNV.c, 83
- ExampleApplications/DiffLaser/Test/diff51Laser/diff51↔
LaserWithOmegaModHopfManifold.c, 83
- ExampleApplications/DiffLaser/Test/diff51Laser/diff51↔
LaserWithOmegaModHopfNV.c, 83
- ExampleApplications/DiffLaser/Test/diff61Laser/diff61↔
LaserDDEwOmega.c, 83
- ExampleApplications/DiffLaser/Test/diff61Laser/diff61↔
LaserWithOmegaHopfManifold.c, 84
- ExampleApplications/DiffLaser/Test/diff61Laser/diff61↔
LaserWithOmegaHopfNV.c, 84
- ExampleApplications/DiffLaser/Test/diff61Laser/diff61↔
LaserWithOmegaModFoldManifold.c, 84
- ExampleApplications/DiffLaser/Test/diff61Laser/diff61↔
LaserWithOmegaModFoldNV.c, 84
- ExampleApplications/DiffLaser/Test/diff61Laser/diff61↔
LaserWithOmegaModHopfManifold.c, 84
- ExampleApplications/DiffLaser/Test/diff61Laser/diff61↔
LaserWithOmegaModHopfNV.c, 84
- ExampleApplications/DiffLaser/Test/diff71Laser/diff71↔
LaserDDEwOmega.c, 84
- ExampleApplications/DiffLaser/Test/diff71Laser/diff71↔
LaserWithOmegaHopfManifold.c, 84
- ExampleApplications/DiffLaser/Test/diff71Laser/diff71↔
LaserWithOmegaHopfNV.c, 84
- ExampleApplications/DiffLaser/Test/diff71Laser/diff71↔
LaserWithOmegaModFoldManifold.c, 84
- ExampleApplications/DiffLaser/Test/diff71Laser/diff71↔
LaserWithOmegaModFoldNV.c, 84
- ExampleApplications/DiffLaser/Test/diff71Laser/diff71↔
LaserWithOmegaModHopfManifold.c, 84
- ExampleApplications/DiffLaser/Test/diff71Laser/diff71↔
LaserWithOmegaModHopfNV.c, 85
- ExampleApplications/DiffLaser/Test/diff81Laser/diff81↔
LaserDDEwOmega.c, 85
- ExampleApplications/DiffLaser/Test/diff81Laser/diff81↔
LaserWithOmegaHopfManifold.c, 85
- ExampleApplications/DiffLaser/Test/diff81Laser/diff81↔
LaserWithOmegaHopfNV.c, 85
- ExampleApplications/DiffLaser/Test/diff81Laser/diff81↔
LaserWithOmegaModFoldManifold.c, 85
- ExampleApplications/DiffLaser/Test/diff81Laser/diff81↔
LaserWithOmegaModFoldNV.c, 85
- ExampleApplications/DiffLaser/Test/diff81Laser/diff81↔
LaserWithOmegaModHopfManifold.c, 85
- ExampleApplications/DiffLaser/Test/diff81Laser/diff81↔
LaserWithOmegaModHopfNV.c, 85
- ExampleApplications/DiffLaser/Test/eigenvalueZero.m, 85
- ExampleApplications/DiffLaser/Wochenendskript.m, 87
- ExampleApplications/DiffLaser/continueHopfDiffLaser↔
N.m, 71
- ExampleApplications/DiffLaser/diffLaser11Optim.m, 75
- ExampleApplications/DiffLaser/diffLaser11Optim2.m, 75
- ExampleApplications/DiffLaser/diffLaser21Optim2.m, 75
- ExampleApplications/DiffLaser/diffLaser31Optim2.m, 75
- ExampleApplications/DiffLaser/diffLaser61Optim2.m, 76
- ExampleApplications/DiffLaser/diffLaserCostPlot.m, 76
- ExampleApplications/DiffLaser/diffLaserCostPlot↔
Intensity.m, 76
- ExampleApplications/DiffLaser/diffLaserCostPlot↔
IntensityPTheta.m, 76
- ExampleApplications/DiffLaser/diffLaserNOptim1.m, 76
- ExampleApplications/DiffLaser/diffLaserNOptim2.m, 76
- ExampleApplications/DiffLaser/diffLaserNOptim2↔
WithoutCurrent.m, 76
- ExampleApplications/DiffLaser/diffLaserNStab.m, 76
- ExampleApplications/DiffLaser/diffLaserNinitNVs.m, 76
- ExampleApplications/DiffLaser/diffLaserNstabRegions.↔
m, 76
- ExampleApplications/DiffLaser/diffLaserOptim.m, 76
- ExampleApplications/DiffLaser/findHopf1.m, 76
- ExampleApplications/DiffLaser/findHopf41.m, 76
- ExampleApplications/DiffLaser/findHopfDiffLaserN.m, 76
- ExampleApplications/DiffLaser/findHopfDiffLaserN↔
AlphaPhi.m, 76
- ExampleApplications/DiffLaser/findHopfDiffLaserN↔
Intermediate.m, 76
- ExampleApplications/DiffLaser/findHopfDiffLaserN↔
Test.m, 78
- ExampleApplications/DiffLaser/findHopfDiffLaserNno↔
Plot.m, 76
- ExampleApplications/DiffLaser/findHopfDiffLaserNno↔
PlotFunction.m, 76
- ExampleApplications/DiffLaser/findHopfDiffLaserNno↔
PlotFunction2.m, 77
- ExampleApplications/DiffLaser/findHopfDiffLaserNno↔
PlotFunction2b.m, 77
- ExampleApplications/DiffLaser/findHopfDiffLaserNno↔
PlotFunction3.m, 77
- ExampleApplications/DiffLaser/manifoldPlotter.m, 78
- ExampleApplications/DiffLaser/manifoldPlotter2.m, 78
- ExampleApplications/DiffLaser/manifoldPlotter2b.m, 78
- ExampleApplications/DiffLaser/manifoldPlotter3d.m, 78
- ExampleApplications/DiffLaser/manifoldPlotter3dSV↔
G.m, 78
- ExampleApplications/DiffLaser/oneLaser/ddeGateway↔
Part1.h, 78
- ExampleApplications/DiffLaser/oneLaser/ddeGateway↔
Part2.h, 78
- ExampleApplications/DiffLaser/oneLaser/hopfMani↔

- GatewayPart1.h, 78
- ExampleApplications/DiffLaser/oneLaser/hopfMani↔
GatewayPart2.h, 78
- ExampleApplications/DiffLaser/oneLaser/hopfNV↔
GatewayPart1.h, 78
- ExampleApplications/DiffLaser/oneLaser/hopfNV↔
GatewayPart2.h, 78
- ExampleApplications/DiffLaser/oneLaser/oneLaserD↔
DE.c, 78
- ExampleApplications/DiffLaser/oneLaser/oneLaser↔
FindHopf.m, 78
- ExampleApplications/DiffLaser/oneLaser/oneLaser↔
HopfManifold.c, 78
- ExampleApplications/DiffLaser/oneLaser/oneLaser↔
HopfNV.c, 78
- ExampleApplications/DiffLaser/oneLaser/oneLaser↔
InitNV.m, 78
- ExampleApplications/DiffLaser/phaseCondition.m, 78
- ExampleApplications/DiffLaser/simLaser.m, 79
- ExampleApplications/DiffLaser/testDiscretization.m, 86
- ExampleApplications/DiffLaser/testTruncation.m, 86
- ExampleApplications/DiffLaser/truncManifoldData.m, 86
- ExampleApplications/DiffLaser/uniformlyDiscretize↔
Curve.m, 86
- ExampleApplications/DiffLaser/uniformlyDiscretize↔
CurveFixedStep.m, 87
- ExampleApplications/FCC/CodeGeneration/pcontrolled↔
FCC15DDE.c, 87
- ExampleApplications/FCC/CodeGeneration/pcontrolled↔
FCC15Delays.c, 87
- ExampleApplications/FCC/CodeGeneration/pcontrolled↔
FCC15FoldManifold.c, 87
- ExampleApplications/FCC/CodeGeneration/pcontrolled↔
FCC15FoldNV.c, 87
- ExampleApplications/FCC/CodeGeneration/pcontrolled↔
FCC15HopfManifold.c, 87
- ExampleApplications/FCC/CodeGeneration/pcontrolled↔
FCC15HopfNV.c, 87
- ExampleApplications/FCC/CodeGeneration/pcontrolled↔
FCC15ModFoldManifold.c, 88
- ExampleApplications/FCC/CodeGeneration/pcontrolled↔
FCC15ModFoldNV.c, 88
- ExampleApplications/FCC/CodeGeneration/pcontrolled↔
FCC15ModHopfManifold.c, 88
- ExampleApplications/FCC/CodeGeneration/pcontrolled↔
FCC15ModHopfNV.c, 88
- ExampleApplications/FCC/I15/FCC15HopfNV.c, 88
- ExampleApplications/FCC/I15/JuliaSimulation/import↔
Sim2Plot.m, 89
- ExampleApplications/FCC/I15/WeekendSkript.m, 91
- ExampleApplications/FCC/I15/compareResults.m, 88
- ExampleApplications/FCC/I15/convertFold2ModFold.m,
88
- ExampleApplications/FCC/I15/fixedAndFreeAlpha.m, 88
- ExampleApplications/FCC/I15/noStabOptPControlled↔
FCC15.m, 89
- ExampleApplications/FCC/I15/noStabOptPControlled↔
FCC15IneqScaled.m, 89
- ExampleApplications/FCC/I15/pcontrolledFCC15DD↔
E.c, 87
- ExampleApplications/FCC/I15/pcontrolledFCC15DD↔
E2.c, 89
- ExampleApplications/FCC/I15/pcontrolledFCC15Hopf↔
Manifold.c, 87
- ExampleApplications/FCC/I15/pcontrolledFCC15Hopf↔
NV.c, 88
- ExampleApplications/FCC/I15/pcontrolledFCC15Hopf↔
NVprint.c, 89
- ExampleApplications/FCC/I15/pcontrolledFCC15Mod↔
FoldManifold.c, 88
- ExampleApplications/FCC/I15/pcontrolledFCC15Mod↔
FoldManifold2.c, 89
- ExampleApplications/FCC/I15/pcontrolledFCC15Mod↔
FoldNV.c, 88
- ExampleApplications/FCC/I15/pcontrolledFCC15Mod↔
FoldNV2.c, 89
- ExampleApplications/FCC/I15/pcontrolledFCC15Mod↔
HopfManifold.c, 88
- ExampleApplications/FCC/I15/pcontrolledFCC15Mod↔
HopfNV.c, 88
- ExampleApplications/FCC/I15/pcontrolledFCC15fold↔
Manifold.c, 89
- ExampleApplications/FCC/I15/pcontrolledFCC15fold↔
Manifold2.c, 89
- ExampleApplications/FCC/I15/pcontrolledFCC15fold↔
NV.c, 89
- ExampleApplications/FCC/I15/pcontrolledFCC15fold↔
NV2.c, 89
- ExampleApplications/FCC/I15/pcontrolledFCCCont↔
Fold.m, 89
- ExampleApplications/FCC/I15/pcontrolledFCCCont↔
FoldFromOpt.m, 89
- ExampleApplications/FCC/I15/pcontrolledFCCCont↔
Hopf.m, 89
- ExampleApplications/FCC/I15/pcontrolledFCCContinuation↔
FindExp.m, 89
- ExampleApplications/FCC/I15/pcontrolledFCCContinuation↔
FromOpt.m, 90
- ExampleApplications/FCC/I15/pcontrolledFCCContinuation↔
MultPlot.m, 90
- ExampleApplications/FCC/I15/plotAllFoldDirections.m,
90
- ExampleApplications/FCC/I15/plotControlledBranch↔
StabilityFCC15.m, 90
- ExampleApplications/FCC/I15/plotFoldModFoldMani↔
PcontrolledFCC15.m, 90
- ExampleApplications/FCC/I15/plotModFoldMani↔
PcontrolledFCC15.m, 90
- ExampleApplications/FCC/I15/plotStabilitypcontrolled↔
FCC15.m, 90
- ExampleApplications/FCC/I15/plotpcontrolledFCC15↔
HopfManis.m, 90
- ExampleApplications/FCC/I15/robExpOptPControlled↔
FCC15.m, 90
- ExampleApplications/FCC/I15/robExpOptPControlled↔
FCC15Ineq.m, 90

- ExampleApplications/FCC/l15/robExpOptPControlled↔
FCC15IneqScale.m, 90
- ExampleApplications/FCC/l15/robOptControlledFC↔
C15.m, 90
- ExampleApplications/FCC/l15/robOptPControlledFC↔
C15.m, 90
- ExampleApplications/FCC/l15/robOptPControlledFC↔
C15Ineq.m, 90
- ExampleApplications/FCC/l15/robOptPControlledFC↔
C15IneqScale.m, 90
- ExampleApplications/FCC/l15/shiftpcontrolledFCC↔
FoldManifoldToModFold.m, 91
- ExampleApplications/FCC/l15/validatepcontrolledFC↔
CFoldManifold.m, 91
- ExampleApplications/FCC/l15/validatepcontrolledFC↔
CHopfManifold.m, 91
- ExampleApplications/TDS2016Population/optimPop↔
MaxRobust.m, 91
- ExampleApplications/TDS2016Population/optim↔
Population.m, 91
- ExampleApplications/TDS2016Population/optim↔
PopulationFixAlpha.m, 91
- ExampleApplications/TDS2016Population/population↔
ModelDDE.c, 91
- ExampleApplications/TDS2016Population/population↔
ModelModFoldMani.c, 58
- ExampleApplications/TDS2016Population/population↔
ModelModFoldNV.c, 58
- exitflag
DDENLP, 30
- findClosestCriticalPoint
NVConstraint, 43
- findConnection
NVConstraint, 43
- findEigVector
NVConstraint, 44
- findHopfDiffLaserNnoPlotFunction
findHopfDiffLaserNnoPlotFunction.m, 77
- findHopfDiffLaserNnoPlotFunction.m
findHopfDiffLaserNnoPlotFunction, 77
- findHopfDiffLaserNnoPlotFunction2
findHopfDiffLaserNnoPlotFunction2.m, 77
- findHopfDiffLaserNnoPlotFunction2.m
findHopfDiffLaserNnoPlotFunction2, 77
- findHopfDiffLaserNnoPlotFunction2b
findHopfDiffLaserNnoPlotFunction2b.m, 77
- findHopfDiffLaserNnoPlotFunction2b.m
findHopfDiffLaserNnoPlotFunction2b, 77
- findHopfDiffLaserNnoPlotFunction3
findHopfDiffLaserNnoPlotFunction3.m, 78
- findHopfDiffLaserNnoPlotFunction3.m
findHopfDiffLaserNnoPlotFunction3, 78
- findManifoldPoint
NVConstraint, 44
- findManifoldPointOnLine
DDENLP, 28
- findNormalVector
NVConstraint, 44
- fixedAndFreeAlpha
fixedAndFreeAlpha.m, 89
- fixedAndFreeAlpha.m
fixedAndFreeAlpha, 89
- fixedUncertParamIndex
DDENLP, 30
- foldManiHandle
DDE, 19
- foldNVHandle
DDE, 19
- freeParamIndices
ManifoldSlice, 40
- getHandles
DDE, 19
- grad
DDENLP, 30
- handle, 36
- hessian
DDENLP, 31
- hopfManiHandle
DDE, 19
- hopfNVHandle
DDE, 19
- index
VariableVector, 52
- inequalities
NVConstraint, 46
- inequalityIndex
NVConstraint, 46
- initNVCons
DDENLP, 28
- initStStConstraint
StStConstraint, 49
- initStStConstraintRot
StStConstraint, 49
- initStepLength
ManifoldSlice, 40
- initVal
DDENLP, 31
- initializeStSt
DDENLP, 28
- initializeStStRot
DDENLP, 28
- lambda
DDENLP, 31
- ldParam/Syncmanifold_3L_Setup1_fkt.m
Syncmanifold_3L_Setup1_fkt, 68
- ldParam/Syncmanifold_3L_fkt.m
Syncmanifold_3L_fkt, 69
- lowerBoxCons
DDENLP, 31
- ManifoldSlice, 40
- maniContin2DbothDirections
ManifoldSlice, 39

- manifoldContinuation2D
 - ManifoldSlice, 39
- ManifoldSlice, 37
 - debugFlag, 39
 - eqAugSys, 39
 - eqNVSys, 40
 - freeParamIndices, 40
 - initStepLength, 40
 - lowerBoxCons, 40
 - maniContin2DbothDirections, 39
 - manifoldContinuation2D, 39
 - ManifoldSlice, 38
 - maxStepLength, 40
 - nManiPoints, 40
 - plot, 39
 - point, 40
 - quiver, 39
 - showStepsFlag, 40
 - stepLength, 40
 - upperBoxCons, 40
- maxAllowedRealPart
 - DDENLP, 31
- maxStepLength
 - ManifoldSlice, 40
- minDist
 - DDENLP, 31
- modfoldManiHandle
 - DDE, 20
- modfoldNVHandle
 - DDE, 20
- modhopfManiHandle
 - DDE, 20
- modhopfNVHandle
 - DDE, 20
- moveAwayFromManifolds
 - DDENLP, 28
- nAlpha
 - DDENLP, 31
- NCSTRdelays
 - NCSTRdelays.m, 60
- NCSTRdelays.m
 - NCSTRdelays, 60
- nEqs
 - EqualityConstraint, 36
 - NVConstraint, 46
 - StStConstraint, 50
- nManiPoints
 - ManifoldSlice, 40
- NVCon
 - DDENLP, 32
- NVConstraint, 41
 - checkSolution, 43
 - conFun, 45
 - eqAugSys, 45
 - eqConnect, 45
 - eqIndex, 45
 - eqNVSys, 46
 - findClosestCriticalPoint, 43
 - findConnection, 43
 - findEigVector, 44
 - findManifoldPoint, 44
 - findNormalVector, 44
 - inequalities, 46
 - inequalityIndex, 46
 - nEqs, 46
 - NVConstraint, 42
 - nVarAugSys, 46
 - nVarNVSys, 46
 - numMinEig, 46
 - optionsEqConsInit, 46
 - optionsInitOptim, 46
 - prepareInitialGuess, 44
 - problemDDE, 46
 - shiftIndex, 45
 - status, 47
 - type, 47
 - vars, 47
- nVar
 - VariableVector, 52
- nVarAugSys
 - NVConstraint, 46
- nVarNVSys
 - NVConstraint, 46
- names
 - VariableVector, 52
- nlcon
 - DDENLP, 31
- nP
 - DDENLP, 31
- ntau
 - DDE, 20
- numMinEig
 - DDENLP, 31
 - NVConstraint, 46
- nX
 - DDENLP, 32
- occupiedEqs
 - DDENLP, 32
- occupiedIneqs
 - DDENLP, 32
- occupiedVars
 - DDENLP, 32
- oneCSTROptim.m
 - dbstack, 60
- optimOutput
 - DDENLP, 32
- optimVal
 - DDENLP, 32
- optionsEqConsInit
 - NVConstraint, 46
- optionsInitEqCons
 - DDENLP, 32
- optionsInitOptim
 - DDENLP, 32
 - NVConstraint, 46
- optionsMainOptim

- DDENLP, 32
- optJ
 - DDENLP, 33
- phaseCondition
 - phaseCondition.m, 79
- phaseCondition.m
 - phaseCondition, 79
- plot
 - ManifoldSlice, 39
- point
 - ManifoldSlice, 40
- prepareInitialGuess
 - NVConstraint, 44
- problemDDE
 - DDENLP, 33
 - NVConstraint, 46
- quiver
 - ManifoldSlice, 39
- reactorCost
 - reactorCost.m, 61
- reactorCost.m
 - reactorCost, 61
- returnOnInvest1
 - returnOnInvest1.m, 60
- returnOnInvest1.m
 - returnOnInvest1, 60
- returnOnInvest2
 - returnOnInvest2.m, 62
- returnOnInvest2.m
 - returnOnInvest2, 62
- returnOnInvest3
 - returnOnInvest3.m, 61
- returnOnInvest3.m
 - returnOnInvest3, 61
- rhs
 - DDE, 20
- runOptim
 - DDENLP, 29
- runOptimAddingNewManifolds
 - DDENLP, 29
- runOptimMultipleInitPoints
 - DDENLP, 29
- runOptimWithStabChecks
 - DDENLP, 29
- shiftIndex
 - EqualityConstraint, 35
 - NVConstraint, 45
 - StStConstraint, 49
 - VariableVector, 52
- showStepsFlag
 - ManifoldSlice, 40
- stStCon
 - DDENLP, 33
- StStConstraint, 47
 - conFun, 50
 - eqIndex, 50
 - initStStConstraint, 49
 - initStStConstraintRot, 49
 - nEqs, 50
 - shiftIndex, 49
 - StStConstraint, 48
 - status, 50
 - vars, 50
- status
 - DDENLP, 33
 - EqualityConstraint, 36
 - NVConstraint, 47
 - StStConstraint, 50
- stepLength
 - ManifoldSlice, 40
- supplyChainDelays
 - supplyChainDelays.m, 59
- supplyChainDelays.m
 - supplyChainDelays, 59
- supplyChainModel
 - supplyChainModel.m, 59
- supplyChainModel.m
 - supplyChainModel, 59
- Syncmanifold_3L_Setup1_fkt
 - IdParam/Syncmanifold_3L_Setup1_fkt.m, 68
 - Syncmanifold_3L_Setup1_fkt.m, 67
- Syncmanifold_3L_Setup1_fkt.m
 - Syncmanifold_3L_Setup1_fkt, 67
- Syncmanifold_3L_fkt
 - IdParam/Syncmanifold_3L_fkt.m, 69
 - Syncmanifold_3L_fkt.m, 69
- Syncmanifold_3L_fkt.m
 - Syncmanifold_3L_fkt, 69
- TestScripts/TestManifoldOnLine.m, 91
- TestScripts/testAutomatedManifoldAdding.m, 91
- TestScripts/testDDE.m, 91
- TestScripts/testDDENLP.m, 91
- TestScripts/testEqualityConstraint.m, 91
- TestScripts/testInitPointGrid.m, 91
- TestScripts/testNVConstraint.m, 91
- TestScripts/testNominalShifting.m, 91
- TestScripts/testVariableVector.m, 91
- threeCSTROptim.m
 - dbstack, 62
- truncManifoldData
 - truncManifoldData.m, 86
- truncManifoldData.m
 - truncManifoldData, 86
- twoCSTROptim.m
 - dbstack, 63
- type
 - NVConstraint, 47
- uncParam
 - DDE, 20
- uniformlyDiscretizeCurve
 - uniformlyDiscretizeCurve.m, 87
- uniformlyDiscretizeCurve.m

- [uniformlyDiscretizeCurve](#), [87](#)
- [uniformlyDiscretizeCurveFixedStep](#)
 - [uniformlyDiscretizeCurveFixedStep.m](#), [87](#)
- [uniformlyDiscretizeCurveFixedStep.m](#)
 - [uniformlyDiscretizeCurveFixedStep](#), [87](#)
- [upperBoxCons](#)
 - [DDENLP](#), [33](#)
 - [ManifoldSlice](#), [40](#)
- [useLHS](#)
 - [DDENLP](#), [33](#)
- [values](#)
 - [VariableVector](#), [52](#)
- [varCollection](#)
 - [varCollection.m](#), [92](#)
- [varCollection.m](#), [91](#)
 - [varCollection](#), [92](#)
- [VariableVector](#), [50](#)
 - [copy](#), [52](#)
 - [index](#), [52](#)
 - [nVar](#), [52](#)
 - [names](#), [52](#)
 - [shiftIndex](#), [52](#)
 - [values](#), [52](#)
 - [VariableVector](#), [51](#)
- [vars](#)
 - [DDENLP](#), [33](#)
 - [EqualityConstraint](#), [36](#)
 - [NVConstraint](#), [47](#)
 - [StStConstraint](#), [50](#)
- [verifyStabPoints](#)
 - [DDENLP](#), [33](#)