stmglossaries package description

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For larger documents, such as reports and thesis, it is nice to have LaTeX take care of things like a list of acronyms or symbols.

If you write multiple documents you maybe want to make sure that the acronyms and symbols you use throughout all your texts are consistent. And you maybe also want to have the chance to change a symbol at a single location instead of crawling through every equation that might be affected by a change in notation.

This package provides an expendable set of commonly used acronyms as well as symbols in structural mechanics. It is build upon the glossaries package.

Contents

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1. Example

This is a simple test. It uses an acronym auxiliary power unit (APU). You can use all the acronyms defined in Appendix A. The example also has an equation to test the symbols:

$$F = ma \tag{1}$$

It creates a nice little list of symbols

Scalars

Symbol	Name	Description
a	Acceleration	
m	Mass	
F	Force	

2. Requirements

`Perl` is required to use the `arara` `makeglossaries` rule. Either install `Perl` or include a path to a binary to the system `PATH` variable. E.g. a `Perl` binary is shipped with `Git` under `GITINSTALLPATH\usr\bin\`.

3. Contents

There are multiple packages included:

Table 2: Package description

Package	Description
`stmglossaries`	Wrapper around the definitions for `acronyms` and `symbols` with options to load both
`stmglossariesbase`	Loads the underlying base package
`stmglossariesacronyms`	Main package for acronyms
`stmglossariesacronymsitems`	Acronym definitions
`stmglossariesacronymsstyles`	Styles for printing acronym lists
`stmglossariescommands`	Utility and shortcut commands
`stmglossariessymbols`	Main package for symbols
`stmglossariessymbolsitems`	Symbol definitions
`stmglossariessymbolsstyles`	Styles for printing symbol lists
`stmglossariessymbolscommands`	Utility commands for symbols

3.1. Acronyms

`stmglossariesacronyms.sty` is the control package for acronyms. It can be used to control the acronym package modules.

`stmglossariesacronymsitems.sty` contains all acronym definitions. These can be

used by the \gls-like commands of glossaries, see section 6.1 of the glossaries documentation.

stmglossariesacronymsstyles.sty contains implementations for the style option in a call to \printglossary[type=\acronymtype,style=STYLENAME]. See subsection 6.1 for details.

3.2. Symbols

stmglossariessymbols.sty is the control package for symbols. It can be used to control the symbol package modules.

stmglossariessymbolsitems.sty contains all symbol definitions. These can be used by the \glssymbol command of glossaries, see section 6.2 of the glossaries documentation.

stmglossariessymbolsstyles.sty contains implementations for the style option in a call to \printglossary[type=scalarlist,style=STYLENAME]. See subsection 6.2 for details.

stmglossariessymbolscommands.sty contains utility commands to facilitate the use of symbols and operators.

4. Usage - in the preamble

There are different options to load acronyms, symbols or the whole thing. Additionally, the package offers some predefined styles to set your symbols in a nice way.

4.1. Base package

stmglossariesbase loads the underlying base package. It must not be loaded explicitly by the user. All other packages check if the package was already loaded with

```
\usepackage{stmglossariesbase}
```

In case you or another package have not loaded *stmglossariesbase* with own options beforehand, the package will load the underlying base package with the options acronym, nomain and toc.

4.2. Load the whole package - acronyms and symbols

This way, the acronym as well as the symbol items are loaded. Load the package by adding

```
\usepackage{stmglossaries}
```

to your preamble.

4.2.1. Options

Option *acronyms* This is a boolean option. Expected values are either `true` or `false`. It controls whether to load the acronym definitions.

```
\usepackage[acronyms=true]{stmglossaries}
```

`acronyms=true` is the default and loads the acronyms. It is used in case `acronyms=false` is not set explicitly.

Option *symbols* This is a boolean option. Expected values are either `true` or `false`. It controls whether to load the symbol definitions.

```
\usepackage[symbols=true]{stmglossaries}
```

`symbols=true` is the default and loads the symbols. It is used in case `symbols=false` is not set explicitly.

Option *items* This is a boolean option. Expected values are either `true` or `false`. It controls whether to load the item definitions.

```
\usepackage[items=true]{stmglossaries}
```

`items=true` is the default and loads the styles. It is used in case `items=false` is not set explicitly.

Option *styles* This is a boolean option. Expected values are either `true` or `false`. It controls whether to load the style definitions.

```
\usepackage[styles=true]{stmglossaries}
```

`styles=true` is the default and loads the styles. It is used in case `styles=false` is not set explicitly.

Option *commands* This is a boolean option. Expected values are either `true` or `false`. It controls whether to load the additional command definitions.

```
\usepackage[commands=true]{stmglossaries}
```

`styles=true` is the default and loads the styles. It is used in case `styles=false` is not set explicitly.

Option *morewrites* This is a boolean option. Expected values are either `true` or `false`. It controls whether to load the morewrites package.

```
\usepackage[morewrites=true]{stmglossaries}
```

`morewrites=true` is the default. It is used in case `morewrites=false` is not set explicitly.

Option *makeglossaries* This is a boolean option. Expected values are either `true` or `false`. It controls whether to execute the `\makeglossaries` command at an appropriate location.

```
\usepackage[makeglossaries=true]{stmglossaries}
```

`makeglossaries=true` is the default. It is used in case `makeglossaries=false` is not set explicitly.

4.3. Load the acronyms package

This way, the acronyms are loaded. Load the package individually by adding

```
\usepackage{stmglossariesacronymitems}
```

to your preamble.
In case you load the package individually, you have to add `\makeglossaries` at a convenient location in your preamble.

4.3.1. Options

Option *items* This is a boolean option. Expected values are either `true` or `false`. It controls whether to load the item definitions from `stmglossariesacronymsitems`.

```
\usepackage[items=true]{stmglossariesacronyms}
```

`items=true` is the default. It is used in case `items=false` is not set explicitly.

Option *styles* This is a boolean option. Expected values are either `true` or `false`. It controls whether to load the style definitions from `stmglossariesacronymsstyles`.

```
\usepackage[styles=true]{stmglossariesacronyms}
```

`styles=true` is the default. It is used in case `styles=false` is not set explicitly.

4.4. Load the symbols package

This way, the symbols are loaded. Load the package individually by adding

```
\usepackage{stmglossariessymbols}
```

to your preamble. In case you have not loaded *glossaries* with your own options beforehand, the package will load the package with the options `acronym`, `nomain` and `toc`.
In case you load the package individually, you have to add `\makeglossaries` at a convenient location in your preamble.

4.4.1. Options

Option *items* This is a boolean option. Expected values are either `true` or `false`. It controls whether to load the item definitions from `stmglossariessymbolsitems`.

```
\usepackage[items=true]{stmglossariessymbols}
```

`styles=true` is the default. It is used in case `styles=false` is not set explicitly.

Option *styles* This is a boolean option. Expected values are either `true` or `false`. It controls whether to load the style definitions from `stmglossariessymbolsstyles`.

```
\usepackage[styles=true]{stmglossariessymbols}
```

`styles=true` is the default. It is used in case `styles=false` is not set explicitly.

Option *commands* This is a boolean option. Expected values are either `true` or `false`. It controls whether to load the command definitions from `stmglossariessymbolscommands`.

```
\usepackage[commands=true]{stmglossariessymbols}
```

`styles=true` is the default. It is used in case `styles=false` is not set explicitly.

5. Usage - in the document

5.1. Acronyms

Print the list of acronyms with the style *stmacronymstyle* and without number using *nonumberlist* with

```
\printglossary[type=\acronymtype,style=stmacronymstyle,nonumberlist]
```

For a description of acronym styles, see subsection 6.1.
A shortcut command using the default style is available:

```
\printstmacronyms
```

5.2. Symbols

5.2.1. Lists

`stmglossariessymbolitems` defines a number of lists for different types of symbols:

scalarlist A list for scalar values

vectorlist A list for vectors

matrixlist	A list for matrices
statelist	A list for peridynamic states
indexlist	A list for indices
exponentlist	A list for exponents
operatorlist	A list for mathematical operators

5.2.2. Combine lists

In case you want to combine the predefined lists and print a single combined list, use

```
\documentclass{...}

\usepackage{stmglossaries}

\newglossary[slg1]{symbollist}{syi1}{syg1}{Nomenclature}
\forallglsentries[scalarlist]{\lfoo}{\glsmoveentry{\lfoo}{symbollist}}
\forallglsentries[vectorlist]{\lfoo}{\glsmoveentry{\lfoo}{symbollist}}
\forallglsentries[matrixlist]{\lfoo}{\glsmoveentry{\lfoo}{symbollist}}
\forallglsentries[statelist]{\lfoo}{\glsmoveentry{\lfoo}{symbollist}}
\makeglossaries

\begin{document}

...

\printglossary[type=symbollist,style=YOURSTYLENAME,nonumberlist]

\end{document}
```

as described in section 16.1 of the `glossaries` documentation.

5.2.3. Commands

Styling There might be a time where you very locally want to define a symbol without adding it to the global list of symbol. Despite that, you want to make sure that the symbol, e.g. for a vector, a matrix or a state, uses the correct notation style.

Therefore, `stmglossariessymbolscommands` defines a couple of useful styling commands

\romanscalarsymbol	A roman scalar symbol
\greekscalarsymbol	A greek scalar symbol

\romanvectorsymbol	A roman vector symbol
\greekvectorsymbol	A greek vector symbol
\romanmatrixsymbol	A roman matrix symbol
\scalarstatesymbol	A greek matrix symbol
\romanvectorstatesymbol	A roman vector state symbol
\romandoublestatesymbol	A roman double state symbol

Utility `stmglossariessymbolscommands` defines a couple of useful utility commands to facilitate access to symbols and operators. These automatically add the operator symbol to the respective list.

`\csyslocal {a}`		$\hat{a}$
`\csysmaterial {a}`		$\bar{a}$
`\difference {a}`		Δa
`\mean {a}`		$\overline{a}$
`\norm {a}`	2-norm	$\|a\|$
`\transpose {a}`		a^T
`\inverse {a}`		a^{-1}
`\timederivativeshort {a}`		$\dot{a}$
`\timederivativeshorttwo {a}`		$\ddot{a}$
`\partialderivativeshort {a}{b}`		$a_{,b}$

Printing There are several shortcut commands available for printing the different glossary lists using the respective default style:

```
\printstmscalarglossary
\printstmvectorglossary
\printstmmatrixglossary
\printstmstateglossary
\printstmindexglossary
\printstmexponentglossary
\printstmoperatorglossary
```

In case you want the whole thing at once, use

```
\printallstmglossaries
```

6. Styles

6.1. Acronym styles

6.1.1. `stmacronymstyle`

Description This is a style for acronyms. It has one item column which is left aligned. The columns are *Abbreviation* and *Description*. Column headings are not printed.

6.2. Symbol styles

6.2.1. `stmsymbolstyle`

Description This is the basic style for variables. It has one item column which is left aligned. The columns are *Symbol*, *Name* and *Description*. Column headings are printed.

Example

Scalars

Symbol	Name	Description
a	Acceleration	
m	Mass	
F	Force	

6.2.2. `stmonecolpapersymbolstyle`

Description This is a style for variables for papers with one centered item column. The columns are *Symbol* and *Name*. Column headings are not printed.

Example

Scalars

a	Acceleration
m	Mass
F	Force

6.2.3. `stmtwocolpapersymbolstyle`

Description This is a style for variables for papers with two centered item column. The columns are *Symbol* and *Name*. Column headings are not printed.

Example

Scalars

a	Acceleration	F	Force
m	Mass		

6.2.4. `stmindexstyle`

Description This is a style for variable indices with one left align item column. The columns are *Symbol* and *Description*. Column headings are printed.

Example

$$\varepsilon_0 \tag{2}$$

Indices

Symbol	Description
$(\ )_0$	Reference configuration

6.2.5. `stmexponentstyle`

Description This is a style for variable exponents with one left align item column. The columns are *Symbol* and *Description*. Column headings are printed.

Example

$$\varepsilon^e \tag{3}$$

Exponents

Symbol	Description
$(\ )^e$	Elastic

6.2.6. `stmoperatorstyle`

Description This is a style for variable operators with one left align item column. The columns are *Symbol* and *Description*. Column headings are printed.

Example

$$\nabla \tag{4}$$

Operators

Symbol	Description
$\nabla(\ )$	Fréchet derivative

Keywords

A. All acronyms

Acronyms

Label	Acronym	Description
acr:ACARE	ACARE	advisory council for aviation research and innovation in europe
acr:ACO	ACO	ant colony optimisation
acr:AFP	AFP	automated fibre placement
acr:ALM	ALM	additive layer manufacturing
acr:API	API	application programming interface
acr:APU	APU	auxiliary power unit
acr:ASTM	ASTM	American society for testing and materials
acr:BB	BB	bond-based
acr:BBPD	BB-PD	bond-based peridynamics
acr:BLI	BLI	boundary layer ingestion
acr:BOM	BOM	bill of material
acr:BSD	BSD	Berkeley software distribution
acr:BVID	BVID	barely visible impact damage
acr:BVP	BVP	boundary value problem
acr:BWB	BWB	blended wing body
acr:CA	CA	consortium agreement
acr:CAD	CAD	computer-aided design
acr:CAE	CAE	computer-aided engineering
acr:CAGR	CAGR	compound annual growth rate
acr:CAI	CAI	compression after impact
acr:CBA	CBA	cost benefit analysis
acr:CDR	CDR	critical design review
acr:CE	CE	constraint equation
acr:CER	CER	composite engineering requirements
acr:CFD	CFD	computational fluid dynamics
acr:CFRP	CFRP	carbon fibre reinforced plastic
acr:CLT	CLT	classical laminate theory
acr:CM	CM	continuum mechanic
acr:CSM	CSM	computational structural mechanics
acr:CT	CT	computed tomography
acr:CTE	CTE	coefficient of thermal expansion
acr:CTT	CTT	compact tension test

Label	Acronym	Description
acr:CZM	CZM	cohesive zone model
acr:DCB	DCB	double cantilever beam
acr:DDMS	DDMS	digital design, manufacturing and services
acr:DELiS	DELiS	design environment for lightweight structures
acr:DFP	DFP	dry fibre placement
acr:DIN	DIN	Deutsches Institut für Normung
acr:DKT	DKT	discrete Kirchhoff theory
acr:DLR	DLR	Deutsches Zentrum für Luft- und Raumfahrt e.V.
acr:DMA	DMA	dynamic mechanical analysis
acr:DOA	DOA	design organization approval
acr:DOE	DOE	design of experiments
acr:DOF	DOF	degree of freedom
acr:DOI	DOI	digital object identifier
acr:DSC	DSC	differential scanning calorimeter
acr:DT	DT	damage tolerance
acr:E2E	E2E	end to end
acr:EA	EA	evolutionary algorithm
acr:ENF	ENF	end-notched flexure
acr:FBG	FBG	fibre bragg grating
acr:FDM	FDM	finite difference method
acr:FE	FE	finite element
acr:FEM	FEM	finite element method
acr:FFT	FFT	fast Fourier transform
acr:FML	FML	fibre metal laminate
acr:FMU	FMU	functional mock-up unit
acr:FRP	FRP	fiber reinforced plastic
acr:FSDT	FSDT	first-order shear deformation theory
acr:FTE	FTE	full time equivalent
acr:FVC	FVC	fibre volume content
acr:FVM	FVM	finite volume method
acr:GA	GA	genetic algorithm
acr:GFEM	GFEM	global finite element model
acr:GLARE	GLARE	glass laminate aluminum reinforced epoxy
acr:GPL	GPL	GNU General Public License
acr:GUI	GUI	graphical user interface
acr:IAB	IAB	industrial advisory board
acr:ICAO	ICAO	international civil aviation organization

Label	Acronym	Description
acr:IDE	IDE	integrated development environment
acr:ISO	ISO	international organization for standardization
acr:jCoMoT	jCoMoT	Java computational mechanics format translator
acr:jMeS	jMeS	Java mechanics suite
acr:KPI	KPI	key performance indicator
acr:LCA	LCA	life cycle assessment
acr:LL	LL	limit load
acr:LPS	LPS	linear peridynamic solid
acr:LVI	LVI	low-velocity impact
acr:MBSE	MBSE	model-based systems engineering
acr:MDO	MDO	multi-disciplinary optimization
acr:MMB	MMB	mixed-mode bending
acr:MoS	MoS	margin of safety
acr:MPC	MPC	multi-point constraint
acr:MRL	MRL	manufacturing readiness level
acr:MRO	MRO	maintenance, repair and overhaul
acr:NASA	NASA	national aeronautics and space administration
acr:NCF	NCF	non-crimp fabric
acr:NDA	NDA	non-disclosure agreement
acr:NDI	NDI	non-destructive inspection
acr:NSB	NSB	non-ordinary state-based
acr:NSB-PD	NSB-PD	non-ordinary state-based peridynamics
acr:OA	OA	open access
acr:ODE	ODE	ordinary differential equation
acr:OHC	OHC	open hole compression
acr:OHT	OHT	open hole tension
acr:OOA	OOA	out-of-autoclave
acr:OSB	OSB	ordinary state-based
acr:OSB-PD	OSB-PD	ordinary state-based peridynamics
acr:PaP	P&P	P&P
acr:PD	PD	peridynamic
acr:PDE	PDE	partial differential equation
acr:PDF	PDF	probability density function
acr:PFST	PFST	picture frame shear test
acr:PMC	PMC	polymer matrix composite

Label	Acronym	Description
acr:POJO	POJO	plain old Java object
acr:PSE	PSE	principal structural element
acr:PSO	PSO	particle swarm optimisation
acr:QI	QI	quasi-isotropic
acr:RF	RF	reserve factor
acr:RMS	RMS	risk mitigation structure
acr:RRSE	RRSE	root relative squared error
acr:RTM	RTM	resin transfer molding
acr:RVE	RVE	representative volume element
acr:SAI	SAI	shear after impact
acr:SBPD	SB-PD	state-based peridynamics
acr:SC	SC	steering committee
acr:SEM	SEM	scanning electron microscopy
acr:SHM	SHM	structural health monitoring
acr:STOVL	STOVL	short take-off vertical landing
acr:SVD	SVD	singular value decomposition
acr:SVM	SVM	support vector machines
acr:TAI	TAI	tension after impact
acr:TFP	TFP	tailored fibre placement
acr:TGA	TGA	thermo-gravimetric analysis
acr:TMA	TMA	thermo-mechanical analysis
acr:TRL	TRL	technology readiness level
acr:UAV	UAV	unmanned aerial vehicle
acr:UD	UD	unidirectional
acr:UHM	UHM	ultra high modulus
acr:UL	UL	ultimate load
acr:VARI	VARI	vacuum-assisted resin transfer molding
acr:VARTM	VARTM	vacuum-assisted resin transfer molding
acr:VCCT	VCCT	virtual crack closure technique
acr:VCT	VCT	vibration correlation technique
acr:VT	VT	virtual testing
acr:VTOL	VTOL	vertical take-off and landing
acr:WORA	WORA	write once, run anywhere
acr:WP	WP	work package

Label	Acronym	Description
acr:XFEM	XFEM	extended finite element method

B. All symbols

Scalars

Label	Symbol
symb:scalar:acceleration	a
symb:scalar:load:bodyforce	b
symb:scalar:pd:bond:constant	c
symb:scalar:geo:diameter	d
symb:scalar:pd:bond:elongation	e
symb:scalar:thickness	h
symb:scalar:geo:1D:length	l
symb:scalar:mass	m
symb:scalar:pd:volume:weighted	m_V
symb:scalar:pd:stretch	s
symb:scalar:pd:stretch:critical	s_C
symb:scalar:time	t
symb:scalar:timestep	Δt
symb:scalar:displacement	u
symb:scalar:displacement:component:global:x	u_x
symb:scalar:displacement:component:global:y	u_y
symb:scalar:displacement:component:global:z	u_z
symb:scalar:velocity	v
symb:scalar:pd:bond:energy:potential	w
symb:scalar:coord:global:x	x
symb:scalar:coord:local:x	$\hat{x}$
symb:scalar:coord:material:x	1
symb:scalar:coord:global:y	y
symb:scalar:coord:local:y	$\hat{y}$
symb:scalar:coord:material:y	2
symb:scalar:coord:global:z	z
symb:scalar:coord:local:z	$\hat{z}$
symb:scalar:coord:material:z	3
symb:scalar:scalarromannull	
symb:scalar:geo:2D:surface	A
symb:scalar:mech:tensor:component:stiffness	C
symb:scalar:mat:modulus:young	E
symb:scalar:load:force	F
symb:scalar:mat:modulus:shear	G
symb:scalar:mat:energyreleaserate	G_0

Label	Symbol
symb:scalar:mat:energyreleaserate:critical	G_{0C}
symb:scalar:mat:energyreleaserate:mode:I	G_I
symb:scalar:mat:energyreleaserate:critical:mode:I	G_{IC}
symb:scalar:mat:energyreleaserate:mode:II	G_{II}
symb:scalar:mat:energyreleaserate:critical:mode:II	G_{IIC}
symb:scalar:pd:family	$\mathcal{H}$
symb:scalar:mat:modulus:bulk	K
symb:scalar:load:moment	M
symb:scalar:fe:shapefunction	N
symb:scalar:mat:strength	R
symb:scalar:system:euclidean	$\mathbb{R}$
symb:scalar:temperature	T
symb:scalar:geo:3D:volume	V
symb:scalar:mech:energy:strain:density	W
symb:scalar:pd:function:damage:bond	χ
symb:scalar:pd:horizon	δ
symb:scalar:geo:separation	δ_c
symb:scalar:mech:strain:normal:engineering	ε
symb:scalar:mech:strain:tensor:component	ϵ
symb:scalar:coord:natural:y	η
symb:scalar:mech:strain:shear:engineering	γ
symb:scalar:mat:poissonratio	ν
symb:scalar:domain:partial	ω
symb:scalar:pd:function:influence	ω
symb:scalar:pd:function:influence:radial	$\omega_{\boldsymbol{\xi}}$
symb:scalar:pd:function:damage:family	φ
symb:scalar:rotation	ψ
symb:scalar:mat:density	ρ
symb:scalar:mech:stress:normal:engineering	σ
symb:scalar:mech:stress:shear:engineering	τ
symb:scalar:pd:dilatation	θ
symb:scalar:geo:angle:debonding	θ_c
symb:scalar:coord:natural:x	ξ
symb:scalar:pd:bond:undeformed:component	ξ
symb:scalar:coord:natural:z	ζ
symb:scalar:scalargreeknull	
symb:scalar:discretization:distance:node	Δx
symb:scalar:domain:boundary	Γ
symb:scalar:domain	Ω

Vectors

Label	Symbol
symb:vector:pd:bond:deformed	$\boldsymbol{\eta}$
symb:vector:pd:bond:undeformed	$\boldsymbol{\xi}$
symb:vector:load:bodyforce	$\mathbf{b}$
symb:vector:unit	$\mathbf{e}$
symb:vector:pd:force	$\mathbf{f}$
symb:vector:mech:strain	$\boldsymbol{\varepsilon}$
symb:vector:mech:stress:cauchy	$\boldsymbol{\sigma}$
symb:vector:pd:bondforcedensity	$\mathbf{t}$
symb:vector:mech:deformation	$\mathbf{u}$
symb:vector:mech:acceleration	$\ddot{\mathbf{u}}$
symb:vector:mech:velocity	$\dot{\mathbf{u}}$
symb:vector:position:undeformed	$\mathbf{x}$
symb:vector:position:deformed	$\mathbf{y}$

Matrices & Tensors

Label	Symbol
symb:matrix:laminate:membrane	$\mathbf{A}$
symb:matrix:laminate:coupling	$\mathbf{B}$
symb:matrix:mat:stiffness	$\mathbf{C}$
symb:matrix:mech:tensor:stiffness	$\mathbf{K}$
symb:matrix:laminate:bending	$\mathbf{D}$
symb:matrix:mech:strain:green	$\mathbf{E}$
symb:matrix:mech:gradient:deformation	$\mathbf{F}$
symb:matrix:laminate:shear	$\mathbf{H}$
symb:matrix:mech:gradient:displacement	$\mathbf{H}$
symb:matrix:identity	$\mathbf{I}$
symb:matrix:interpolationoperator	$\mathbf{I}_\Gamma$
symb:matrix:jacobian	$\mathbf{J}$
symb:matrix:mech:tensor:shape	$\mathbf{K}$
symb:matrix:stiffness	$\mathbf{K}$
symb:matrix:mass	$\mathbf{M}$
symb:matrix:mech:stress:piolakirchhoff:first	$\mathbf{P}$
symb:matrix:laminate:ply:stiffness	$\mathbf{Q}$
symb:matrix:mat:compliance	$\mathbf{S}$
symb:matrix:mech:stress:piolakirchhoff:second	$\mathbf{S}$
symb:matrix:transformation	$\mathbf{T}$

Label	Symbol

States

Label	Symbol
symb:state:scalar:influence	$\underline{\omega}$
symb:state:scalar:extension	$\underline{e}$
symb:state:scalar:force	$\underline{t}$
symb:state:scalar:position:undeformed	$\underline{x}$
symb:state:scalar:position:deformed	$\underline{y}$
symb:state:scalar:stateromannull	
symb:state:vector:force	$\underline{\mathbf{T}}$
symb:state:vector:direction:deformed	$\underline{\mathbf{M}}$
symb:state:vector:position	$\underline{\mathbf{X}}$
symb:state:vector:deformation	$\underline{\mathbf{Y}}$
symb:state:vector:stateromannull	
symb:state:double:modulus	$\underline{\mathbb{K}}$

Indices

Label	Symbol
symb:index:load:compression	C
symb:index:load:compression:long	cmp
symb:index:critical	C
symb:index:hardening	H
symb:index:mat:damage:mode:I	I
symb:index:mat:damage:mode:II	II
symb:index:init	$init$
symb:index:load:shear	S
symb:index:load:shear:long	shr
symb:index:load:tension	T
symb:index:load:tension:long	ten
symb:index:xyz	x, y, z
symb:index:yield	y
symb:index:zero	0

Exponents

Label	Symbol
symb:exponent:midplane	0
symb:exponent:deviatoric	d
symb:exponent:elastic	e
symb:exponent:linear	l
symb:exponent:nonlinear	nl
symb:exponent:plastic	p
symb:exponent:volumetric	v

Operators

Label	Symbol
symb:operator:csys:local	$\hat{(\ )}$
symb:operator:csys:material	$\bar{(\ )}$
symb:operator:Delta	$\Delta(\ )$
symb:operator:differential:Newton	$\dot{(\ )}$
symb:operator:differential:Newton:2	$\ddot{(\ )}$
symb:operator:differential:partial:short	$(\ )_{,x}$
symb:operator:differential:Euler	$\mathrm{D}(\ )$
symb:operator:differential:Lagrange	$(\ )'$
symb:operator:differential:Leibnitz	$\mathrm{d}(\ )$
symb:operator:differential:partial	$\partial(\ )$
symb:operator:divergence	$\mathrm{div}(\ )$
symb:operator:product:dot	$\cdot$
symb:operator:kroneckerdelta	δ_{ij}
symb:operator:matrix:inverse	$(\ )^{-1}$
symb:operator:matrix:transpose	$(\ )^{T}$
symb:operator:mean	$\overline{(\ )}$
symb:operator:derivative:frechet	$\nabla(\ )$

Label	Symbol
symb:operator:norm	$\|\|(\ )\|\|$
symb:operator:product:tensor	$\otimes$

C. The code

C.1. stmglossaries.sty

```
%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%
% Header                           %
%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%
%
% This file includes the common LaTeX
% glossaries definitions
% (acronyms, glossaries, symbols)
% for structural mechanics
% Based upon the glossaries package:
%   https://ctan.org/pkg/glossaries
%
% Usage
%  - Premble:
%     - \usepackage{stmglossaries}
%     - \makeglossaries
%  - Document: e.g. (Adapt to your type of glossary item)
%     - \printglossary[type=\acronymtype] or
%     - \printglossary[type=\acronymtype,nonumberlist]
%  - Compilation: e.g. (Adapt to your type of glossary item)
%     - makeindex -s [MYTEXFILENAME].ist -o [MYTEXFILENAME].acr [MYTEXFILENAME].acn
%
% Revisions: 2019-10-27 Martin Raedel <martin.raedel@dlr.de>
%                       Initial draft
%
% Contact:   Martin Raedel,  martin.raedel@dlr.de
%            DLR Composite Structures and Adaptive Systems
%
%                                 __/|__
%                                /_/_/_/
%            www.dlr.de/fa/en      |/ DLR
%
% Copyright (C) 2019-... DLR Composite Structures and Adaptive Systems
%
%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%
% Content                          %
%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%

```

```
% Declare that this style file requires at least LaTeX
   version 2e.
\NeedsTeXFormat{LaTeX2e}

% Provide the name of your page, the date it was last updated
   , and a comment about what it's used for
\ProvidesPackage{stmglossaries}[2019/11/03 STMs custom LaTeX
   glossaries definitions]

% If not loaded in advance, load the glossaries package with
   some default options
\@ifpackageloaded{stmglossariesbase}{}{\RequirePackage{
   stmglossariesbase}}%

% For options
\@ifpackageloaded{kvoptions}{}{\RequirePackage{kvoptions}}%

% ----------------------------
% Options
% ----------------------------

\SetupKeyvalOptions{%
  family=stmglossaries,%
  prefix=stmglossaries@,%
  setkeys=\kvsetkeys,%
}

% Acronyms
\DeclareBoolOption[true]{acronyms}

% Symbols
\DeclareBoolOption[true]{symbols}

% Load items
\DeclareBoolOption[true]{items}

% Load styles
\DeclareBoolOption[true]{styles}

% Load commands
\DeclareBoolOption[true]{commands}

% Load morewrites
\DeclareBoolOption[true]{morewrites}
```

```
77
78 % Load morewrites
79 \DeclareBoolOption[true]{makeglossaries}
80
81 % Process options
82 \ProcessKeyvalOptions{stmglossaries}
83
84 % ----------------------------
85 % Modules
86 % ----------------------------
87
88 % Load morewrites
89 \@ifpackageloaded{morewrites}{}{%
90   \ifstmglossaries@morewrites%
91     \RequirePackage{morewrites}%
92   \fi%
93 }%
94
95 % Load the acronyms
96 \ifstmglossaries@acronyms
97   \@ifpackageloaded{stmglossariesacronyms}{}{%
98     \RequirePackage[%
99       items={\ifstmglossaries@items true\else false\fi},%
100      styles={\ifstmglossaries@styles true\else false\fi},%
101    ]{stmglossariesacronyms}%
102  }%
103 \fi
104
105 % Load the symbols
106 \ifstmglossaries@symbols
107   \@ifpackageloaded{stmglossariessymbols}{}{%
108     \RequirePackage[%
109       items={\ifstmglossaries@items true\else false\fi},%
110       styles={\ifstmglossaries@styles true\else false\fi},%
111       commands={\ifstmglossaries@commands true\else false\fi
            },%
112    ]{stmglossariessymbols}%
113  }%
114 \fi
115
116 % Load the print commands
117 \@ifpackageloaded{stmglossariescommands}{}{%
118   \ifstmglossaries@commands%
119     \RequirePackage{stmglossariescommands}%
```

```
  \fi
}%

% ----------------------------
% Makeglossaries command
% ----------------------------

\ifstmglossaries@makeglossaries
  \@ifpackageloaded{etoolbox}{}{%
    \RequirePackage{etoolbox}
  }

  \AtEndPreamble{%
    \makeglossaries%
  }
\fi

%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%
% That's it                          %
%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%

% Finally, we'll use \endinput to indicate that LaTeX can
    stop reading this file. LaTeX will ignore anything after
    this line.
\endinput
```

C.2. stmglossariesbase.sty

```
%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%
% Header                             %
%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%
%
% This file includes the common LaTeX
% symbol definitions
% for structural mechanics
%
% It can be used independently if only
% symbols are necessary or bundled in
% stmglossaries.sty
%
% Revisions: 2019-10-27 Martin Raedel <martin.raedel@dlr.de>
%                       Initial draft
%
% Contact:   Martin Raedel,  martin.raedel@dlr.de
```

```
%             DLR Composite Structures and Adaptive Systems
%
%                                      __/|__
%                                     /_/_/_/
%             www.dlr.de/fa/en          // DLR
%
% Copyright (C) 2019-... DLR Composite Structures and Adaptive Systems
%
%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%
% Usage                              %
%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%
%
% Symbols-Glossary
%
% Compilation:
%
%   %S - main tex source file name
%
% without any helpers:
%
%   pdflatex %S.tex
%   makeindex -s %S.ist -t %S.slg1 -o %S.syi1 %S.syg1
%   makeindex -s %S.ist -t %S.slg2 -o %S.syi2 %S.syg2
%   ...
%   pdflatex %S.tex
%   pdflatex %S.tex
%
% with perl interpreter installation
%
%   pdflatex %S.tex
%   makeglossaries %S
%   pdflatex %S
%   pdflatex %S
%
% with LuaLaTeX
%
%   makeglossaries-lite doc
%
%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%
% Requirements                       %
%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%

% Declare that this style file requires at least LaTeX
```

```
   version 2e.
\NeedsTeXFormat{LaTeX2e}

% Provide the name of your page, the date it was last updated
   , and a comment about what it's used for
\ProvidesPackage{stmglossariesbase}[2019/10/27 STMs custom
   LaTeX base glossaries definitions]

% If not loaded in advance, load the glossaries package with
   some default options
\@ifpackageloaded{glossaries}{%
%
}{%
  \RequirePackage[%
    acronym,    % create a list of acronyms
    nomain,     % do not use the main glossary
    toc,        % add glossary titles to table of contents
  ]{glossaries}%
}%

%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%
% That's it                         %
%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%

\endinput
```

C.3. stmglossariesacronyms.sty

```
%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%
% Header                            %
%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%
%
% This file includes the common LaTeX
% acronyms definitions
% (acronyms, glossaries, acronyms)
% for structural mechanics
% Based upon the glossaries package:
%   https://ctan.org/pkg/glossaries
%
% Usage
%  - Premble:
%    - \usepackage{stmglossariesacronyms}
%    - \makeglossaries
%  - Document: e.g. (Adapt to your type of glossary item)
```

```
%     - \printglossary[type=\acronymtype] or
%     - \printglossary[type=\acronymtype,nonumberlist]
%   - Compilation: e.g. (Adapt to your type of glossary item)
%     - makeindex -s [MYTEXFILENAME].ist -o [MYTEXFILENAME].
    acr [MYTEXFILENAME].acn
%
% Revisions: 2019-10-27 Martin Raedel <martin.raedel@dlr.de>
%                       Initial draft
%
% Contact:   Martin Raedel,  martin.raedel@dlr.de
%            DLR Composite Structures and Adaptive Systems
%
%                                    __/|__
%                                   /_/_/_/
%            www.dlr.de/fa/en         |/ DLR
%
% Copyright (C) 2019-... DLR Composite Structures and
    Adaptive Systems
%
%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%
% Content                                 %
%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%

% Declare that this style file requires at least LaTeX
    version 2e.
\NeedsTeXFormat{LaTeX2e}

% Provide the name of your page, the date it was last updated
    , and a comment about what it's used for
\ProvidesPackage{stmglossariesacronyms}[2019/11/03 STMs
    custom LaTeX acronym definitions]

% If not loaded in advance, load the glossaries package with
    some default options
\@ifpackageloaded{stmglossariesbase}{}{\RequirePackage{
    stmglossariesbase}}%

% For options
\@ifpackageloaded{kvoptions}{}{\RequirePackage{kvoptions}}%

% ----------------------------
% Options
% ----------------------------

```

```
\SetupKeyvalOptions{%
  family=stmglossariesacronyms,%
  prefix=stmglossariesacronyms@,%
  setkeys=\kvsetkeys,%
}

% Load styles
\DeclareBoolOption[true]{items}

% Load styles
\DeclareBoolOption[true]{styles}

% Process options
\ProcessKeyvalOptions{stmglossariesacronyms}

% ----------------------------
% Modules
% ----------------------------

% Load the items
\ifstmglossariesacronyms@items
  \@ifpackageloaded{stmglossariesacronymsitems}{}{\
     RequirePackage{stmglossariesacronymsitems}}
\fi

% Load the styles
\ifstmglossariesacronyms@styles
  \@ifpackageloaded{stmglossariesacronymsstyles}{}{\
     RequirePackage{stmglossariesacronymsstyles}}
\fi

%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%
% That's it                          %
%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%

% Finally, we'll use \endinput to indicate that LaTeX can
   stop reading this file. LaTeX will ignore anything after
   this line.
\endinput
```

C.4. stmglossariesacronymsstyles.sty

```
%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%
% Header                             %
```

```
%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%
%
% This file includes the common LaTeX
% acronym style definitions
% (acronyms, glossaries, symbols)
% for structural mechanics
%
% Revisions: 2019-10-27 Martin Raedel <martin.raedel@dlr.de>
%                       Initial draft
%
% Contact:   Martin Raedel,  martin.raedel@dlr.de
%            DLR Composite Structures and Adaptive Systems
%
%                                    __/|__
%                                   /_/_/_/
%            www.dlr.de/fa/en         |/ DLR
%
% Copyright (C) 2019-... DLR Composite Structures and
   Adaptive Systems
%
%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%
% Content                                   %
%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%

% Declare that this style file requires at least LaTeX
   version 2e.
\NeedsTeXFormat{LaTeX2e}

% Provide the name of your page, the date it was last updated
   , and a comment about what it's used for
\ProvidesPackage{stmglossariesacronymsstyles}[2019/10/27 STMs
    custom LaTeX acronyms style definitions]

% If not loaded in advance, load the glossaries package with
   some default options
\@ifpackageloaded{stmglossariesbase}{}{\RequirePackage{
   stmglossariesbase}}%

%
\@ifpackageloaded{longtable}{}{\RequirePackage{longtable}}%
\@ifpackageloaded{tabu}{}{\RequirePackage{tabu}}%

%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%
% Functionality                             %
```

```
%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%

%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%
% Redefine package options          %
%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%

%Den Punkt am Ende jeder Beschreibung deaktivieren
\renewcommand*{\glspostdescription}{}
% \renewcommand*{\glspostdescription}{\dotfill}

%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%
% Own styles                        %
%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%

% -----------------
% Acronym-styles
% -----------------

\newglossarystyle{stmacronymstyle}{%
  \renewenvironment{theglossary}%
    {\begin{longtabu} to \linewidth {lX}}%
    {\end{longtabu}}%
  % Header line
  \renewcommand*{\glossaryheader}{%
    %\textbf{Label} & \textbf{Symbol}
    \tabularnewline%
    \tabularnewline%
    \endhead%
    \endfoot%
  }%
  % indicate what to do at the start of each logical group
  %\renewcommand*{\glsgroupheading}[1]{}%
  %\renewcommand*{\glsgroupskip}{}% What to do between groups
  \renewcommand*{\glsgroupskip}{\tabularnewline}% What to do
     between groups
  \renewcommand*{\glossaryentryfield}[5]{%
    \glsentryitem{##1}\glstarget{##1}{##2}
      & ##3\glspostdescription ##5% Description
    \tabularnewline%
  }
}

% -----------------
% Style to show the keys
```

```
% -----------------

\newglossarystyle{stmacronymlabelstyle}{%
  \renewenvironment{theglossary}%
    {\begin{longtabu} to \linewidth {lcX}}%
    {\end{longtabu}}%
  % Header line
  \renewcommand*{\glossaryheader}{%
    \textbf{Label} & \textbf{Acronym} & \textbf{Description}
    \tabularnewline%
    \tabularnewline%
    \endhead%
    \endfoot%
  }%
  % indicate what to do at the start of each logical group
  %\renewcommand*{\glsgroupheading}[1]{}%
  %\renewcommand*{\glsgroupskip}{}% What to do between groups
  \renewcommand*{\glsgroupskip}{\tabularnewline}% What to do
     between groups
  \renewcommand*{\glossaryentryfield}[5]{%
    \glsentrycounterlabel{##1} &%
    \glsentryitem{##1}\glstarget{##1}{##2}&%
    ##3\glspostdescription ##5% Description
    \tabularnewline%
  }
}

%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%
% That's it                          %
%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%

% Finally, we'll use \endinput to indicate that LaTeX can
    stop reading this file. LaTeX will ignore anything after
    this line.
\endinput
```

C.5. stmglossariescommands.sty

```
%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%
% Header                             %
%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%
%
% This file includes the common command shortcuts
% for acronyms and glossaries
```

```
7  % for structural mechanics
8  %
9  % It can be used independently if only
10 % symbols are necessary or bundled in
11 % stmglossaries.sty
12 %
13 % Revisions: 2019-10-27 Martin Raedel <martin.raedel@dlr.de>
14 %                        Initial draft
15 %
16 % Contact:   Martin Raedel,  martin.raedel@dlr.de
17 %            DLR Composite Structures and Adaptive Systems
18 %
19 %                                  __/|__
20 %                                 /_/_/_/
21 %            www.dlr.de/fa/en       |/ DLR
22 %
23 % Copyright (C) 2019-... DLR Composite Structures and
      Adaptive Systems
24 %
25 %%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%
26 % Content                                 %
27 %%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%
28
29 % Declare that this style file requires at least LaTeX
      version 2e.
30 \NeedsTeXFormat{LaTeX2e}
31
32 % Provide the name of your page, the date it was last updated
      , and a comment about what it's used for
33 \ProvidesPackage{stmglossariescommands}[2019/10/27 STMs
      custom LaTeX glossary commands]
34
35 % ----------------------------
36 % Commands
37 % ----------------------------
38
39 \newcommand{\printstmacronyms}        {\printglossary[type=\
      acronymtype,style=stmacronymlabelstyle,nonumberlist]}
40
41 \newcommand{\printstmscalarglossary}  {\printglossary[type=
      scalarlist  ,style=stmsymbollabelstyle,nonumberlist]}
42 \newcommand{\printstmvectorglossary}  {\printglossary[type=
      vectorlist  ,style=stmsymbollabelstyle,nonumberlist]}
43 \newcommand{\printstmmatrixglossary}  {\printglossary[type=
```

```
   matrixlist  ,style=stmsymbollabelstyle,nonumberlist]}
\newcommand{\printstmstateglossary}   {\printglossary[type=
   statelist   ,style=stmsymbollabelstyle,nonumberlist]}
\newcommand{\printstmindexglossary}   {\printglossary[type=
   indexlist   ,style=stmsymbollabelstyle,nonumberlist]}
\newcommand{\printstmexponentglossary}{\printglossary[type=
   exponentlist,style=stmsymbollabelstyle,nonumberlist]}
\newcommand{\printstmoperatorglossary}{\printglossary[type=
   operatorlist,style=stmoperatorlabelstyle,nonumberlist]}

\newcommand{\printallstmglossaries}{%
  \printstmscalarglossary%
  \printstmvectorglossary%
  \printstmmatrixglossary%
  \printstmstateglossary%
  \printstmindexglossary%
  \printstmexponentglossary%
  \printstmoperatorglossary%
}

%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%
% That's it                         %
%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%

\endinput
```

C.6. stmglossariessymbols.sty

```
%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%
% Header                            %
%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%
%
% This file includes the common LaTeX
% symbols definitions
% (acronyms, glossaries, symbols)
% for structural mechanics
% Based upon the glossaries package:
%   https://ctan.org/pkg/glossaries
%
% Usage
%  - Premble:
%    - \usepackage{stmglossaries}
%    - \makeglossaries
%  - Document: e.g. (Adapt to your type of glossary item)
```

```
17 %     - \printglossary[type=\acronymtype] or
18 %     - \printglossary[type=\acronymtype,nonumberlist]
19 %   - Compilation: e.g. (Adapt to your type of glossary item)
20 %     - makeindex -s [MYTEXFILENAME].ist -o [MYTEXFILENAME].
       acr [MYTEXFILENAME].acn
21 %
22 % Revisions: 2019-10-27 Martin Raedel <martin.raedel@dlr.de>
23 %                        Initial draft
24 %
25 % Contact:   Martin Raedel,  martin.raedel@dlr.de
26 %            DLR Composite Structures and Adaptive Systems
27 %
28 %                                  __/|__
29 %                                 /_/_/_/
30 %            www.dlr.de/fa/en       |/ DLR
31 %
32 % Copyright (C) 2019-... DLR Composite Structures and
       Adaptive Systems
33 %
34 %%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%
35 % Content                                 %
36 %%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%
37
38 % Declare that this style file requires at least LaTeX
       version 2e.
39 \NeedsTeXFormat{LaTeX2e}
40
41 % Provide the name of your page, the date it was last updated
       , and a comment about what it's used for
42 \ProvidesPackage{stmglossariessymbols}[2019/11/03 STMs custom
       LaTeX symbol definitions]
43
44 % If not loaded in advance, load the glossaries package with
       some default options
45 \@ifpackageloaded{stmglossariesbase}{}{\RequirePackage{
       stmglossariesbase}}%
46
47 % For options
48 \@ifpackageloaded{kvoptions}{}{\RequirePackage{kvoptions}}%
49
50 % ----------------------------
51 % Options
52 % ----------------------------
53
```

```
\SetupKeyvalOptions{%
  family=stmglossariessymbols,%
  prefix=stmglossariessymbols@,%
  setkeys=\kvsetkeys,%
}

% Load styles
\DeclareBoolOption[true]{items}

% Load styles
\DeclareBoolOption[true]{styles}

% Load commands
\DeclareBoolOption[true]{commands}

% Process options
\ProcessKeyvalOptions{stmglossariessymbols}

% ----------------------------
% Modules
% ----------------------------

% Load the items
\ifstmglossariessymbols@items
  \@ifpackageloaded{stmglossariessymbolsitems}{}{\
     RequirePackage{stmglossariessymbolsitems}}
\fi

% Load the styles
\ifstmglossariessymbols@styles
  \@ifpackageloaded{stmglossariessymbolsstyles}{}{\
     RequirePackage{stmglossariessymbolsstyles}}
\fi

% Load the commands
\ifstmglossariessymbols@commands
  \@ifpackageloaded{stmglossariessymbolscommands}{}{\
     RequirePackage{stmglossariessymbolscommands}}
\fi

%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%
% That's it                          %
%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%

```

```
% Finally, we'll use \endinput to indicate that LaTeX can stop reading this file. LaTeX will ignore anything after this line.
\endinput
```

C.7. stmglossariessymbolscommands.sty

```
%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%
% Header                              %
%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%
%
% This file includes the common LaTeX
% symbol commands definitions
% for structural mechanics
%
% It can be used independently if only
% symbols are necessary or bundled in
% stmglossaries.sty
%
% Revisions: 2019-10-27 Martin Raedel <martin.raedel@dlr.de>
%                       Initial draft
%
% Contact:   Martin Raedel,  martin.raedel@dlr.de
%            DLR Composite Structures and Adaptive Systems
%
%                                    __/|__
%                                   /_/_/_/
%            www.dlr.de/fa/en         // DLR
%
% Copyright (C) 2019-... DLR Composite Structures and Adaptive Systems
%
%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%
% Usage                               %
%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%

% Declare that this style file requires at least LaTeX version 2e.
\NeedsTeXFormat{LaTeX2e}

% Provide the name of your page, the date it was last updated, and a comment about what it's used for
\ProvidesPackage{stmglossariessymbolscommands}[2019/10/27 STMs custom LaTeX symbol command definitions]
```

```
34
35 %
36 \@ifpackageloaded{stmglossariessymbolsitems}{}{\
      RequirePackage{stmglossariessymbolsitems}}%
37
38 %%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%
39 % Commands                           %
40 %%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%
41
42 \newcommand{\csyslocal}[1]{%
43   %The symbol
44   \ensuremath{\hat{#1}}%
45   %Add the operator to the list
46   \glsadd{symb:operator:csys:local}%
47 }
48
49 \newcommand{\csysmaterial}[1]{%
50   %The symbol
51   \ensuremath{\bar{#1}}%
52   %Add the operator to the list
53   \glsadd{symb:operator:csys:material}%
54 }
55
56 \newcommand{\difference}[1]{%
57   %The symbol
58   \ensuremath{\glssymbol{symb:operator:Delta}#1}%
59 }
60
61 \newcommand{\derivative}[1]{%
62   %The symbol
63   \ensuremath{\glssymbol{symb:operator:dif}#1}%
64   %Add the operator to the list
65   \glsadd{symb:operator:dif}%
66 }
67
68 \newcommand{\timederivativeshort}[1]{%
69   %The symbol
70   \ensuremath{\dot{#1}}%
71   %Add the operator to the list
72   \glsadd{symb:operator:dif:short:time}%
73 }
74
75 \newcommand{\timederivativeshorttwo}[1]{%
76   %The symbol
```

```
77    \ensuremath{\ddot{#1}}%
78    %Add the operator to the list
79    \glsadd{symb:operator:dif:short:time:2}%
80  }
81
82  \newcommand{\mean}[1]{%
83    %The symbol
84    \ensuremath{\overline{#1}}%
85    %Add the operator to the list
86    \glsadd{symb:operator:mean}%
87  }
88
89  \newcommand{\norm}[1]{%
90    %The symbol
91    \ensuremath{\glssymbol{symb:operator:norm:left}#1\glssymbol
        {symb:operator:norm:right}}%
92    %Add the operator to the list
93    \glsadd{symb:operator:norm}%
94  }
95
96  \newcommand{\transpose}[1]{%
97    \ensuremath{#1^{\glssymbol{symb:operator:matrix:transpose
        }}}%
98  }
99
100 \newcommand{\inverse}[1]{%
101   \ensuremath{#1^{\glssymbol{symb:operator:matrix:inverse}}}%
102 }
103
104 \newcommand{\partialderivativeshort}[2]{%
105   %The symbol
106   \ensuremath{#1_{,#2}}%
107   %Add the operator to the list
108   \glsadd{symb:operator:differential:partial:short}%
109 }
110
111 %%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%
112 % That's it                          %
113 %%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%
114
115 \endinput
```

C.8. stmglossariessymbolstyles.sty

```
%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%
% Header                           %
%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%
%
% This file includes the common LaTeX
% glossaries style definitions
% (acronyms, glossaries, symbols)
% for structural mechanics
%
% Revisions: 2019-10-27 Martin Raedel <martin.raedel@dlr.de>
%                       Initial draft
%
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%                                /_/_/_/
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%
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%
%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%
% Content                          %
%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%

% Declare that this style file requires at least LaTeX version 2e.
\NeedsTeXFormat{LaTeX2e}

% Provide the name of your page, the date it was last updated, and a comment about what it's used for
\ProvidesPackage{stmglossariessymbolsstyles}[2019/10/27 STMs custom LaTeX glossaries style definitions]

% Now paste your code from the preamble here

% If not loaded in advance, load the glossaries package with some default options
\@ifpackageloaded{stmglossariesbase}{}{\RequirePackage{stmglossariesbase}}%

%
\@ifpackageloaded{longtable}{}{\RequirePackage{longtable}}%
```

```
\@ifpackageloaded{tabu}{}{\RequirePackage{tabu}}%
\@ifpackageloaded{multicol}{}{\RequirePackage{multicol}}%

%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%
% Functionality                      %
%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%

%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%
% Redefine package options           %
%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%

%Den Punkt am Ende jeder Beschreibung deaktivieren
\renewcommand*{\glspostdescription}{}
% \renewcommand*{\glspostdescription}{\dotfill}

%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%
% Own styles                         %
%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%

% ------------------
% Coordinate-system style
% ------------------

\newglossarystyle{mycoordinatesystemstyle}{%
  %\renewcommand{\glossarysection}[2][]{}% no title
  \renewcommand*{\glsclearpage}{}% avoid page break before
     glossary
  \renewenvironment{theglossary}%
    {\begin{longtabu} to \linewidth {cX}}%
    {\end{longtabu}}%
  % Header line
  \renewcommand*{\glossaryheader}{%
    % Requires booktabs
    %\toprule%
    \textbf{Symbol} & \textbf{Description}%
    \tabularnewline%
    \tabularnewline%
    %\midrule%
    \endhead%
    %\bottomrule%
    \endfoot%
  }%
  % indicate what to do at the start of each logical group
  %\renewcommand*{\glsgroupheading}[1]{}%
```

```
  %\renewcommand*{\glsgroupskip}{}% What to do between groups
  \renewcommand*{\glsgroupskip}{\tabularnewline}% What to do
     between groups
  \renewcommand*{\glossentry}[1]{%
    \glsentryitem{##1}% Entry number if required
    \glstarget{##1}{\glossentrysymbol{##1}} &
    %\glossentrysymbol{##1}      & % Symbol
    %\glossentryname{##1}        & % Name
    \glossentrydesc{##1}         %& % Description
    %\glsentryuseri{##1}%          % Unit in User1-Variable
    \tabularnewline%
  }%
}

% -----------------
% Symbols-styles
% -----------------

\newglossarystyle{stmsymbolstyle}{%
  %\renewcommand{\glossarysection}[2][]{}% no title
  \renewcommand*{\glsclearpage}{}% avoid page break before
     glossary
  \renewenvironment{theglossary}%
    {\begin{longtabu} to \linewidth {clX}}%c}}%
    {\end{longtabu}}%
  % Header line
  \renewcommand*{\glossaryheader}{%
    \textbf{Symbol} & \textbf{Name} & \textbf{Description}% &
        \textbf{Unit}%
    \tabularnewline%
    \tabularnewline%
    \endhead%
    \endfoot%
  }%
  % What to do between groups
  \renewcommand*{\glsgroupskip}{\tabularnewline}
  \renewcommand*{\glossentry}[1]{%
    \glsentryitem{##1}% Entry number if required
    \glstarget{##1}{\glossentrysymbol{##1}} &
    %\glossentrysymbol{##1}      & % Symbol
    \glossentryname{##1}         & % Name
    \glossentrydesc{##1}         %& % Description
    %\glsentryuseri{##1}%          % Unit in User1-Variable
    \tabularnewline%
```

```
  }%
}

% -----------------
% Symbols-styles for papers
% -----------------

\newglossarystyle{stmonecolpapersymbolstyle}{%
  %\renewcommand{\glossarysection}[2][]{}% no title
  \renewcommand*{\glsclearpage}{}% avoid page break before glossary
  \renewenvironment{theglossary}%
    {\begin{longtabu} to \linewidth {clXcl}}%c}}%
    {\end{longtabu}}%
  % Header line
  \renewcommand*{\glossaryheader}{}%
  % indicate what to do at the start of each logical group
  %\renewcommand*{\glsgroupheading}[1]{}
  % What to do between groups -> no skip
  \renewcommand*{\glsgroupskip}{}
  % How the entry looks like
  \renewcommand*{\glossentry}[1]{
    \glsentryitem{##1}% Entry number if required
    \glstarget{##1}{\glossentrysymbol{##1}} & % Symbol
    \glossentryname{##1}        %& % Name
    \tabularnewline%
  }%
}

% https://tex.stackexchange.com/a/216434/44634
% needs: \usepackage{multicol}
\newglossarystyle{stmtwocolpapersymbolstyle}{%
  %\renewcommand{\glossarysection}[2][]{}% no title
  \renewenvironment{theglossary}%
    {\begin{multicols}{2}\raggedright}
    {\end{multicols}}
  % Header line
  \renewcommand*{\glossaryheader}{}%
  \renewcommand*{\glsgroupheading}[1]{}% indicate what to do at the start of each logical group
  \renewcommand*{\glsgroupskip}{}% What to do between groups -> no skip
  \renewcommand*{\glsclearpage}{}% avoid page break before glossary
```

```
  % set how each entry should appear:
  \renewcommand*{\glossentry}[2]{
    \noindent\makebox[2.5em][c]{\glstarget{##1}{\
       glossentrysymbol{##1}}}% Symbol
    \glossentryname{##1}% Name
    \newline
  }
}

% -----------------
% Exponent-styles
% -----------------

\newglossarystyle{stmexponentstyle}{%
  %\renewcommand{\glossarysection}[2][]{}% no title
  \renewcommand*{\glsclearpage}{}% avoid page break before
     glossary
  \renewenvironment{theglossary}%
    % \extrarowsep=1mm
    {%
      \begingroup
      \renewcommand{\arraystretch}{1.4}
      \begin{longtabu} to \linewidth {@{\ \ }r@{}lX}
    }{%
      \end{longtabu}
      \endgroup
    }%
  % Header line
  \renewcommand*{\glossaryheader}{%
    \multicolumn{2}{@{}c@{}}{\textbf{Symbol}} & \textbf{
       Description}%
    \tabularnewline%
    \tabularnewline%
    \endhead%
    \endfoot%
  }%
  % indicate what to do at the start of each logical group
  %\renewcommand*{\glsgroupheading}[1]{}%
  % What to do between groups
  %\renewcommand*{\glsgroupskip}{}
  % What to do between groups
  \renewcommand*{\glsgroupskip}{\tabularnewline}%
  \renewcommand*{\glossentry}[1]{%
    \glsentryitem{##1}% Entry number if required
```

```
    \protect\ensuremath{\protect\left(\protect\phantom{a}\
       protect\right)} &
    \glstarget{##1}{\protect\ensuremath{\protect\vphantom{a
       }^{\glossentrysymbol{##1}}}} &
    %\glossentrysymbol{##1}      & % Symbol
    %\glossentryname{##1}        & % Name
    \glossentrydesc{##1}         %& % Description
    %\glsentryuseri{##1}%          % Unit in User1-Variable
    \tabularnewline%
  }%
}

% -----------------
% Index-styles
% -----------------

\newglossarystyle{stmindexstyle}{%
  %\renewcommand{\glossarysection}[2][]{}% no title
  \renewcommand*{\glsclearpage}{}% avoid page break before
     glossary
  \renewenvironment{theglossary}%
    {%
      \begingroup
      \renewcommand{\arraystretch}{1.4}
      \begin{longtabu} to \linewidth {@{\ \ }r@{}lX}
    }{%
      \end{longtabu}
      \endgroup
    }%
  % Header line
  \renewcommand*{\glossaryheader}{%
    \multicolumn{2}{@{}c@{}}{\textbf{Symbol}} & \textbf{
       Description}%
    \tabularnewline%
    \tabularnewline%
    \endhead%
    \endfoot%
  }%
  % indicate what to do at the start of each logical group
  %\renewcommand*{\glsgroupheading}[1]{}%
  % What to do between groups
  %\renewcommand*{\glsgroupskip}{}%
  % What to do between groups
  \renewcommand*{\glsgroupskip}{\tabularnewline}
```

```
  \renewcommand*{\glossentry}[1]{%
    \glsentryitem{##1}% Entry number if required
    \protect\ensuremath{\protect\left(\protect\phantom{a}\
       protect\right)} &
    %\glstarget{##1}{\glossentrysymbol{##1}} &
    \glstarget{##1}{\protect\ensuremath{\protect\vphantom{a
       }_{\glossentrysymbol{##1}}}} &
    %\glossentrysymbol{##1}     & % Symbol
    %\glossentryname{##1}       & % Name
    \glossentrydesc{##1}        %& % Description
    %\glsentryuseri{##1}%         % Unit in User1-Variable
    \tabularnewline%
  }%
}

% -----------------
% Operator style
% -----------------

\newglossarystyle{stmoperatorstyle}{%
  %\renewcommand{\glossarysection}[2][]{}% no title
  % avoid page break before glossary
  \renewcommand*{\glsclearpage}{}
  \renewenvironment{theglossary}%
    % \extrarowsep=1mm
    {%
      \begingroup%
      \renewcommand{\arraystretch}{1.4}%
      %\begin{longtabu} to \linewidth {cX}
      \begin{longtabu} to \linewidth {@{\ \;}r@{}c@{}lX}
    }%
    {%
      \end{longtabu}
      \endgroup
    }%
  % Header line
  \renewcommand*{\glossaryheader}{%
    \multicolumn{3}{@{}c@{}}{\textbf{Symbol}} & \textbf{
       Description}%
    \tabularnewline%
    \tabularnewline%
    \endhead%
    \endfoot%
  }%
```

```
  % indicate what to do at the start of each logical group
  %\renewcommand*{\glsgroupheading}[1]{}%
  % What to do between groups
  %\renewcommand*{\glsgroupskip}{}%
  % What to do between groups
  \renewcommand*{\glsgroupskip}{\tabularnewline}
  \renewcommand*{\glossentry}[1]{%
    \glsentryitem{##1}% Entry number if required
    %\glstarget{##1}{\glossentrysymbol{##1}} &
    %\glstarget{##1}{\glossentrysymbol{##1}}&
    \glsentryuseri{##1} &
    \glsentryuserii{##1} &
    \glsentryuseriii{##1} &
    %\glossentrysymbol{##1}      & % Symbol
    %\glossentryname{##1}        & % Name
    \glossentrydesc{##1}         %& % Description
    %\glsentryuseri{##1}%          % Unit in User1-Variable
    \tabularnewline%
  }%
}

% ------------------
% Style to show the keys
% ------------------

\newglossarystyle{stmsymbollabelstyle}{%
  \renewcommand*{\glsclearpage}{}% avoid page break before
     glossary
  \renewenvironment{theglossary}%
    {\begin{longtabu} to \linewidth {Xc}}%
    {\end{longtabu}}%
  % Header line
  \renewcommand*{\glossaryheader}{%
    \textbf{Label} & \textbf{Symbol}
    \tabularnewline%
    \tabularnewline%
    \endhead%
    \endfoot%
  }%
  % What to do between groups
  \renewcommand*{\glsgroupskip}{\tabularnewline}
  \renewcommand*{\glossentry}[1]{%
    \glsentryitem{##1}% Entry number if required
    \glsentrycounterlabel{##1} &
```

```
    \glstarget{##1}{\glossentrysymbol{##1}}% &
    \tabularnewline%
  }%
}

\newglossarystyle{stmoperatorlabelstyle}{%
  %\renewcommand{\glossarysection}[2][]{}% no title
  % avoid page break before glossary
  \renewcommand*{\glsclearpage}{}
  \renewenvironment{theglossary}%
    {%
      \begingroup%
      \renewcommand{\arraystretch}{1.4}%
      \begin{longtabu} to \linewidth {X@{\ \;}r@{}c@{}l}
    }%
    {%
      \end{longtabu}
      \endgroup
    }%
  % Header line
  \renewcommand*{\glossaryheader}{%
    \textbf{Label} & \multicolumn{3}{@{}c@{}}{\textbf{Symbol
       }}% & %
    \tabularnewline%
    \tabularnewline%
    \endhead%
    \endfoot%
  }%
  % indicate what to do at the start of each logical group
  %\renewcommand*{\glsgroupheading}[1]{}%
  % What to do between groups
  %\renewcommand*{\glsgroupskip}{}%
  % What to do between groups
  \renewcommand*{\glsgroupskip}{\tabularnewline}
  \renewcommand*{\glossentry}[1]{%
    \glsentryitem{##1}% Entry number if required
    \glsentrycounterlabel{##1} &
    \glsentryuseri{##1} &
    \glsentryuserii{##1} &
    \glsentryuseriii{##1}% &
    \tabularnewline%
  }%
}

```

```
371
372 %%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%
373 % That's it                              %
374 %%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%
375
376 % Finally, we'll use \endinput to indicate that LaTeX can
       stop reading this file. LaTeX will ignore anything after
       this line.
377 \endinput
```