Comparison of alternative kriging models

	Matern 5/2	Matern 3/2	Gaussian	exponent.	power exp.
Q2 constant trend	0.8304	0.8253	0.8293	0.5989	0.8161
Q2 1st order poly. trend	0.8587	0.8389	0.8743	0.7275	0.8178
RMSE constant trend	0.0149	0.0149	0.0149	0.0149	0.0149
RMSE 1st order poly. trend	0.0058	0.0058	0.0058	0.0058	0.0058
MAE constant trend	0.0128	0.0128	0.0128	0.0128	0.0128
MAE 1st order poly. trend	0.0053	0.0053	0.0053	0.0053	0.0053
RMA constant trend	1.9103	1.9103	1.9103	1.9103	1.9103
RMA 1st order poly. trend	0.6210	0.6210	0.6210	0.6210	0.6210

Q2: cross validation Q2 (higher is better)
RMSE/MAE/RMA: external validation RMSE/MAE/RMA (lower is better)

Kriging meta−model estimation (standardized)

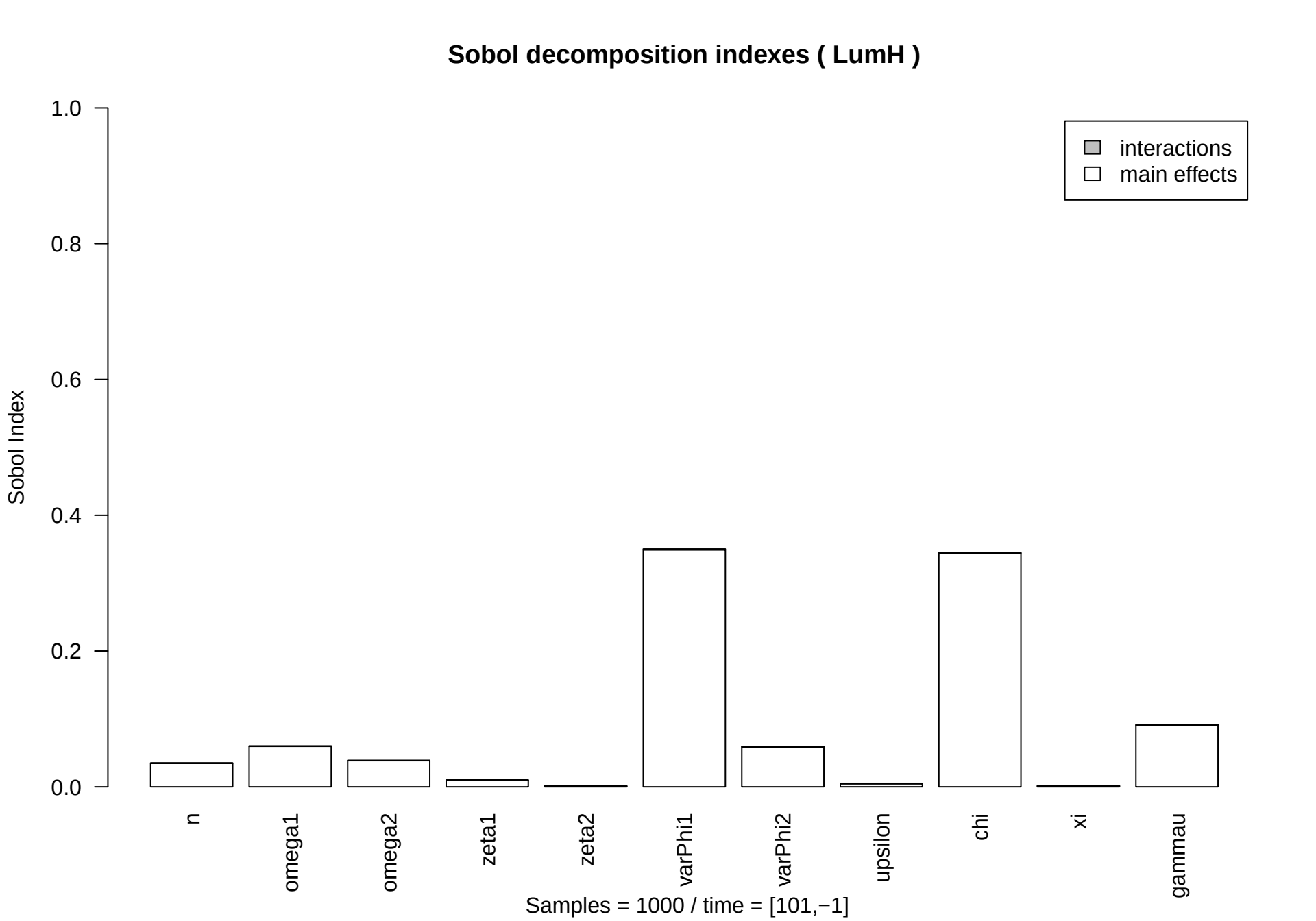
trend(intercept)	0.189	Trend specification	1st order poly.
trend(inclination)	−0.012	Correlation function	Gaussian
theta(n)	0.945	Cross−sample Q2	0.874
theta(omega1)	1.396	External RMSE	0.006
theta(omega2)	1.413	External MAE	0.005
theta(zeta1)	1.490	External RMA	0.621
theta(zeta2)	0.980	DoE samples	65
theta(varPhi1)	1.643	External samples	10
theta(varPhi2)	1.651		
theta(upsilon)	0.774		
theta(chi)	1.621		
theta(xi)	1.992		
theta(gammau)	1.458		

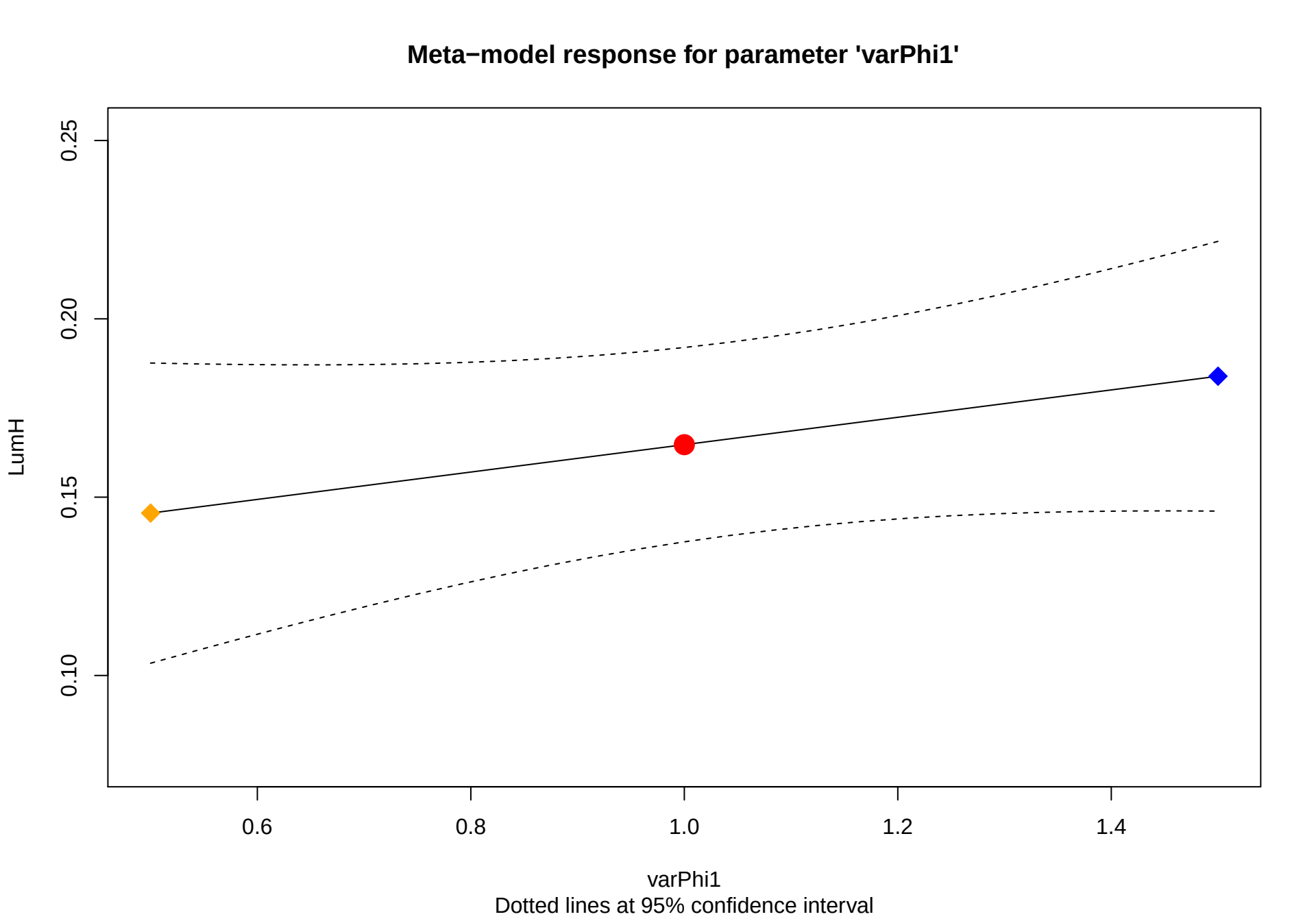
Variables rescaled to [0,1] / Average 95% CI = +/− 0.04
Predicted output at defaults: LumH = 0.16, 95% CI = [0.14,0.19], time = [101,−1]

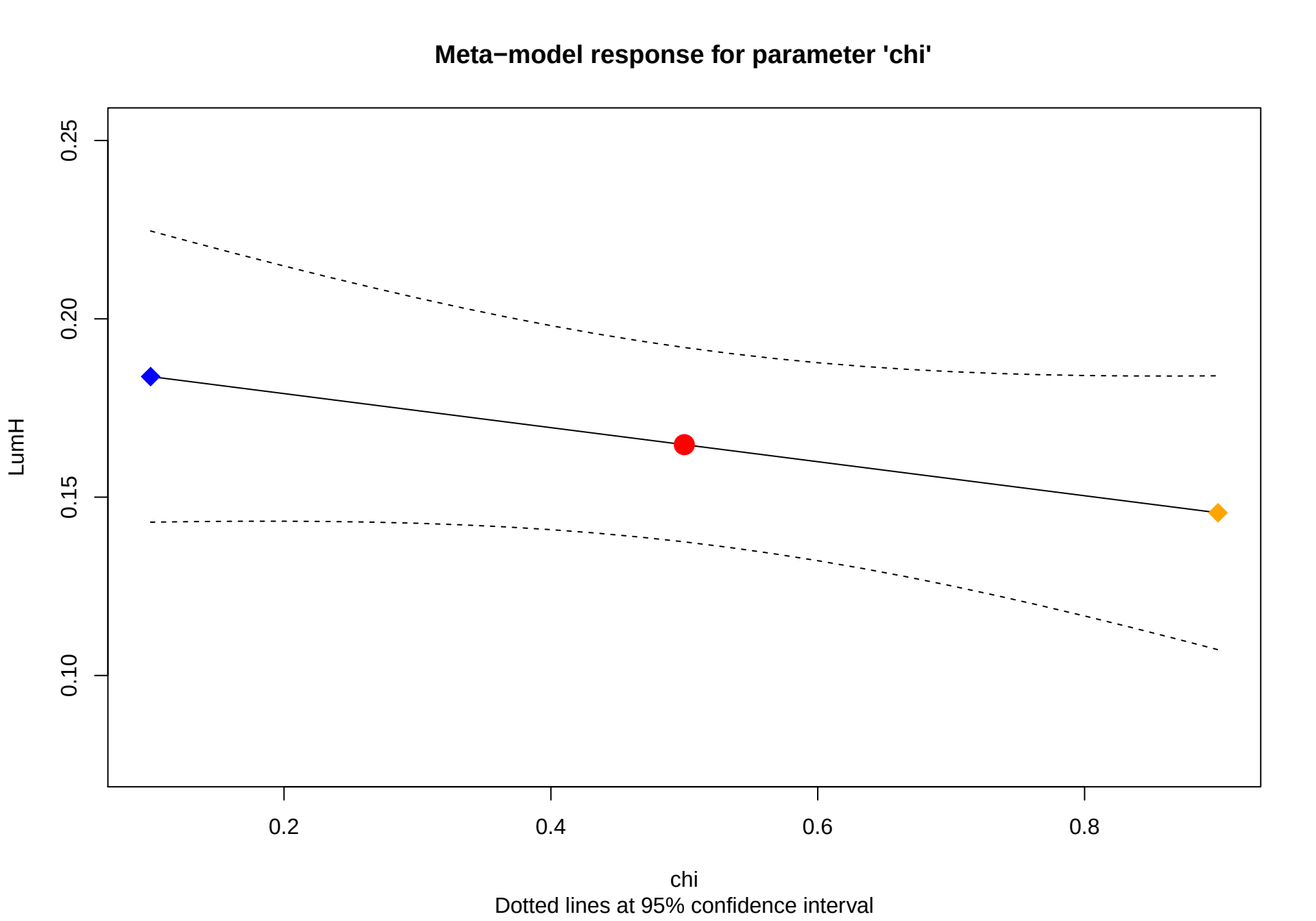
Sobol decomposition indexes (LumH)

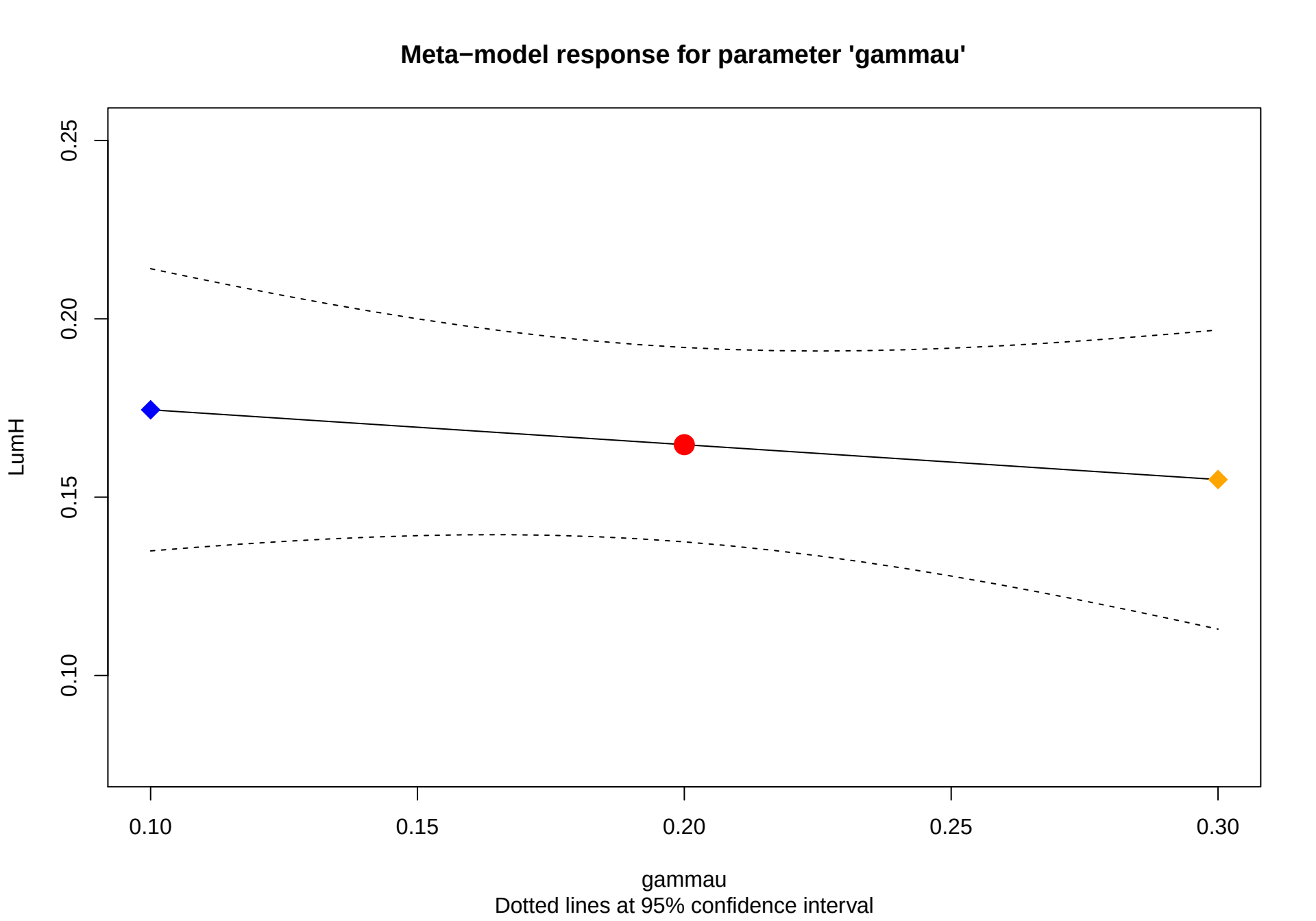
	Direct effects	Interactions
n	0.035	0.001
omega1	0.060	0.001
omega2	0.038	0.001
zeta1	0.010	0.000
zeta2	0.001	0.000
varPhi1	0.349	0.001
varPhi2	0.059	0.001
upsilon	0.005	0.001
chi	0.344	0.001
xi	0.001	0.001
gammau	0.091	0.001

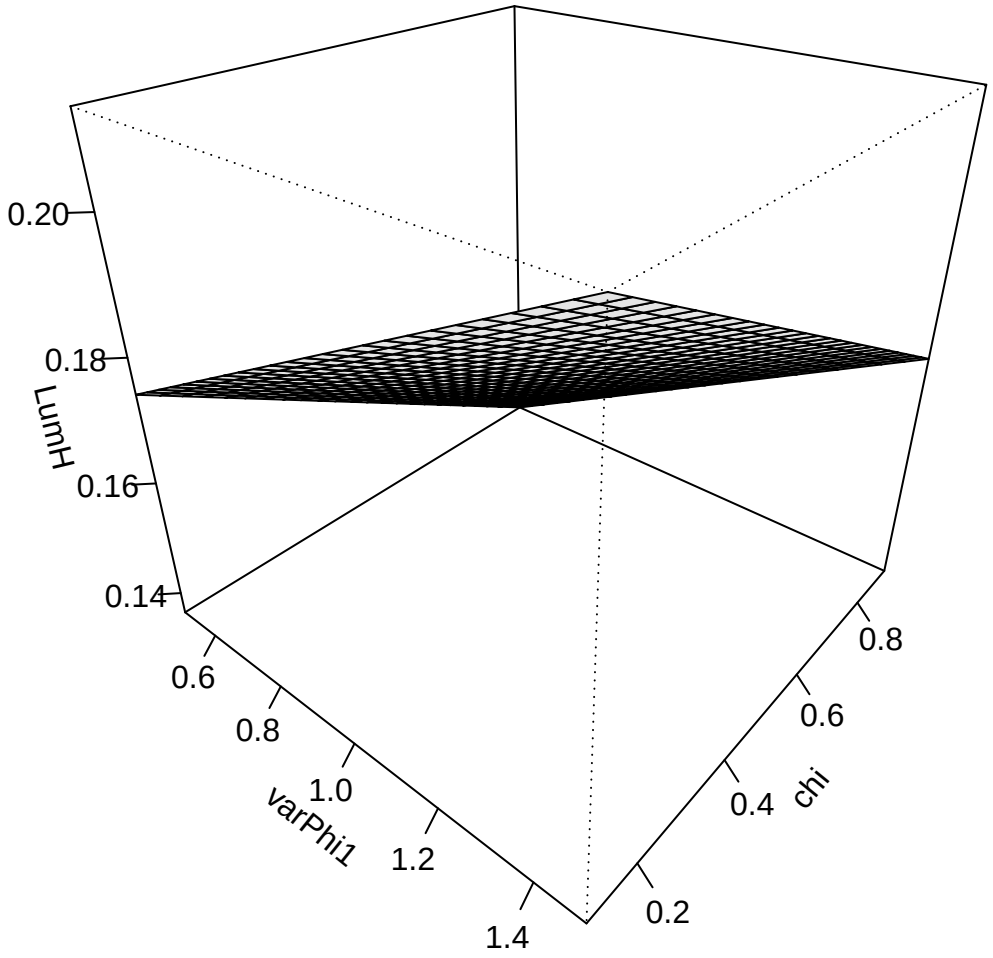
Samples = 1000 / time = [101,−1]

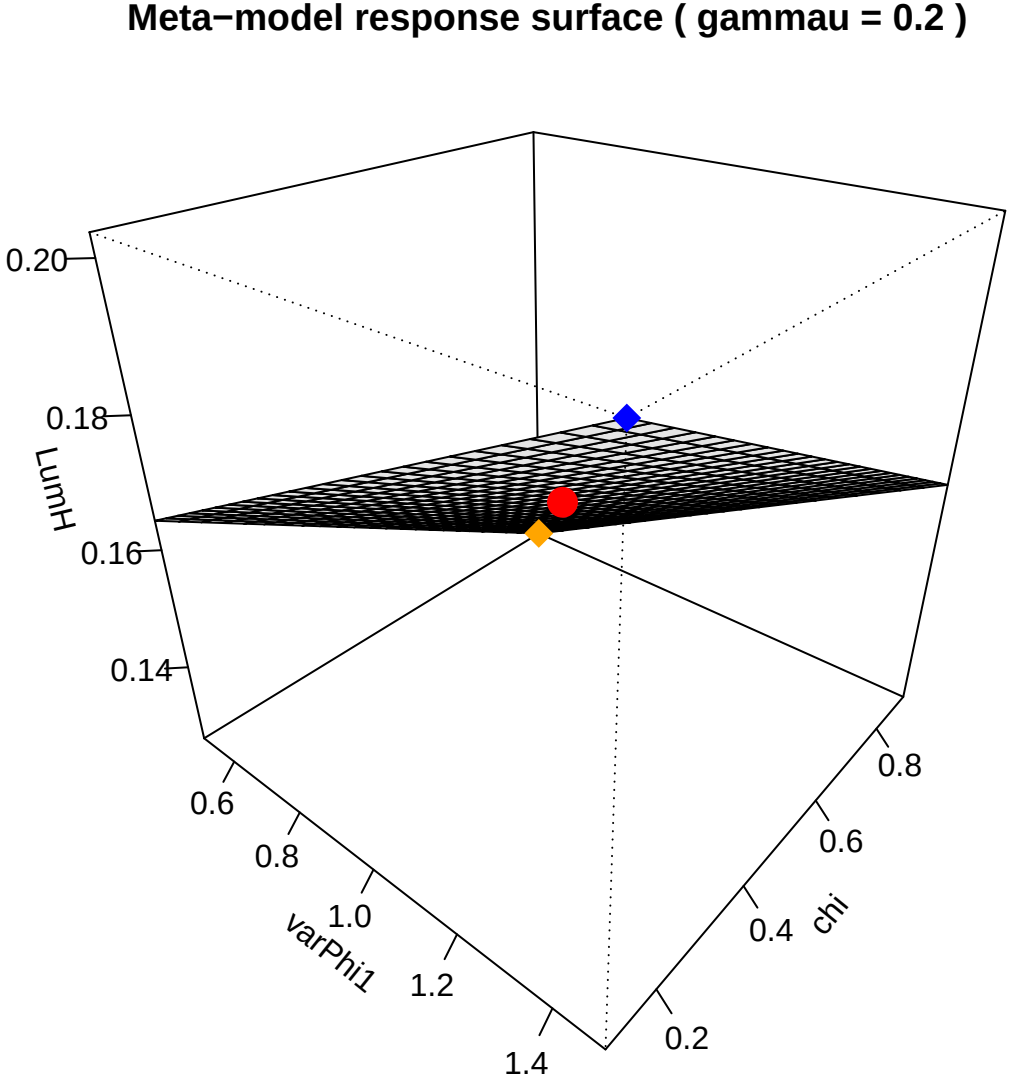

Sobol decomposition indexes (LumH)
interactions
main effects
Sobol Index
1.0
0.8
0.6
0.4
0.2
0.0
n
omega1
omega2
zeta1
zeta2
varPhi1
varPhi2
upsilon
chi
xi
gammau
Samples = 1000 / time = [101,−1]

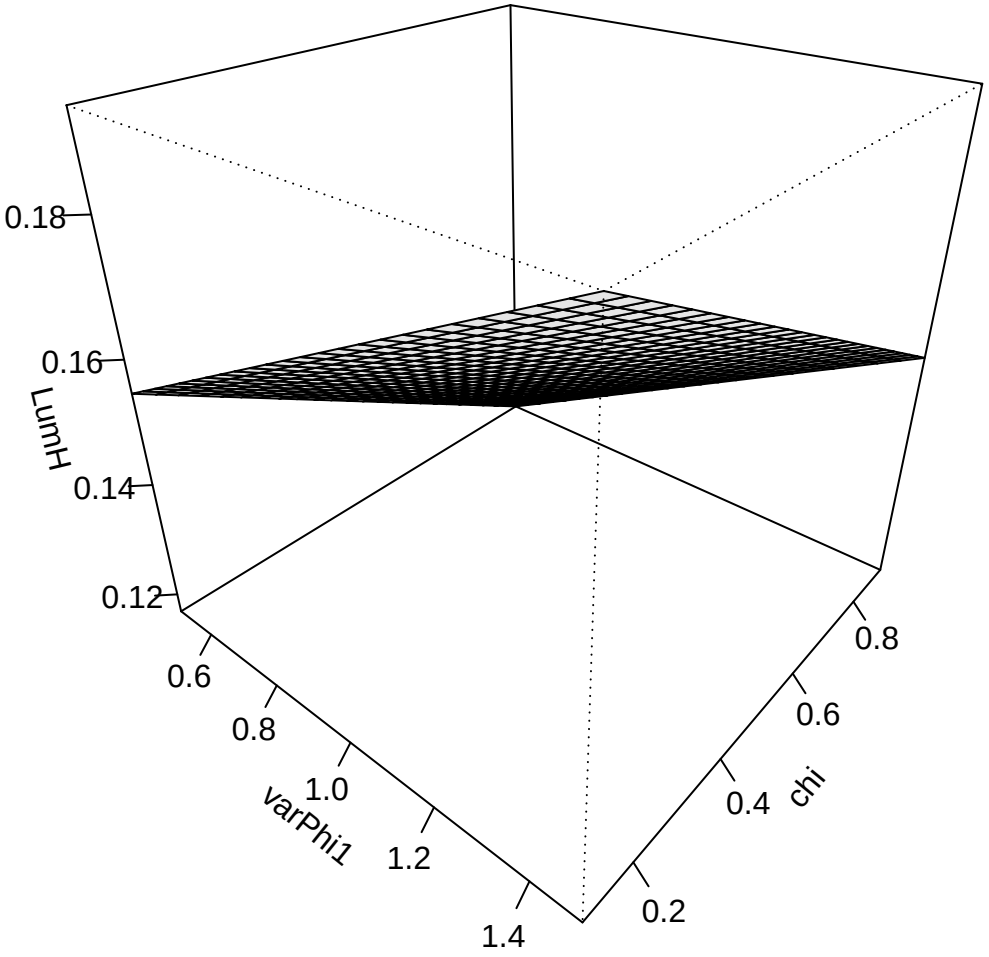

Meta−model response for parameter 'varPhi1'
LumH
0.10
0.15
0.20
0.25
0.6
0.8
1.0
1.2
1.4
varPhi1
Dotted lines at 95% confidence interval

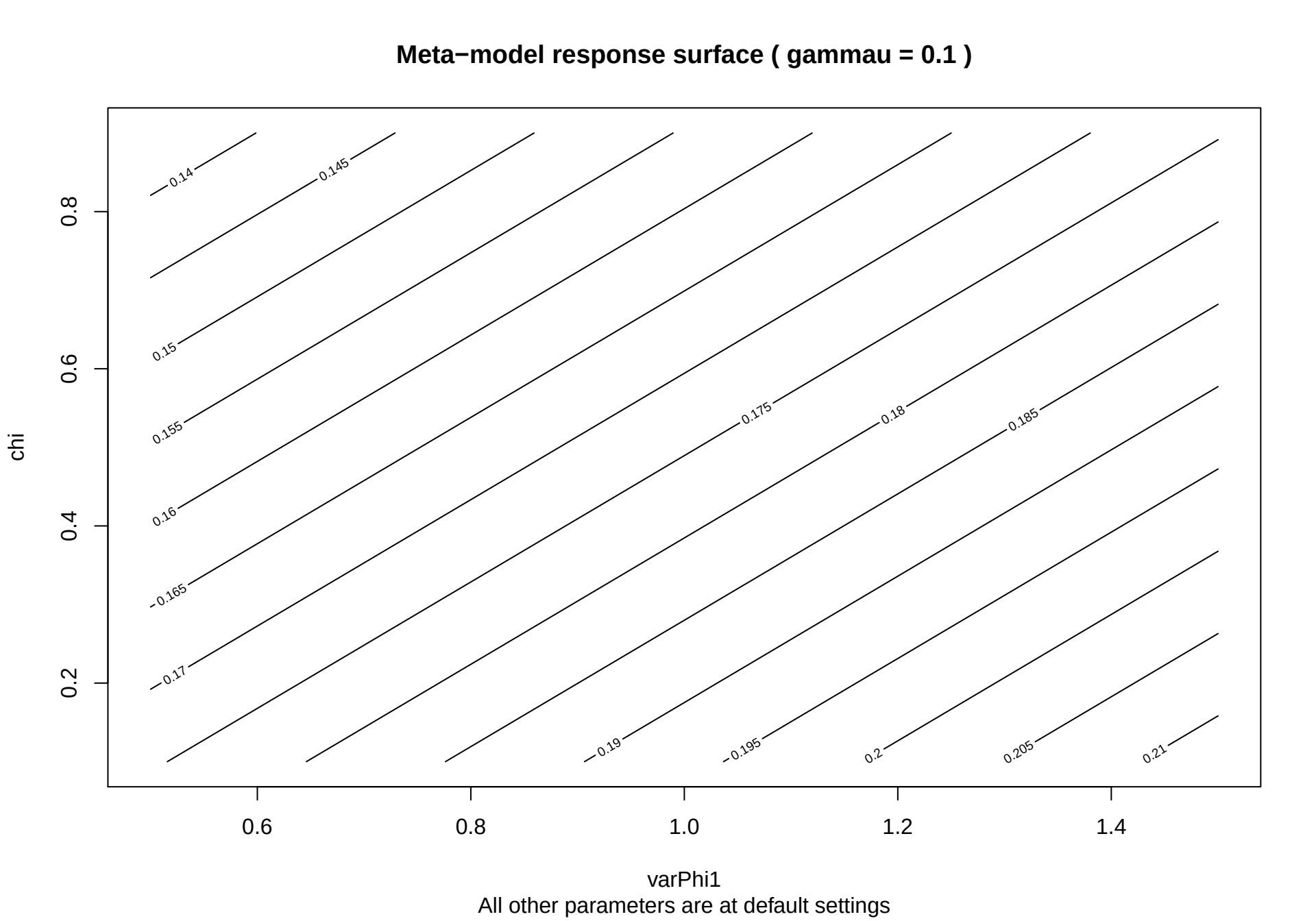

Meta−model response for parameter 'chi'
LumH
0.25
0.20
0.15
0.10
0.2
0.4
0.6
0.8
chi
Dotted lines at 95% confidence interval

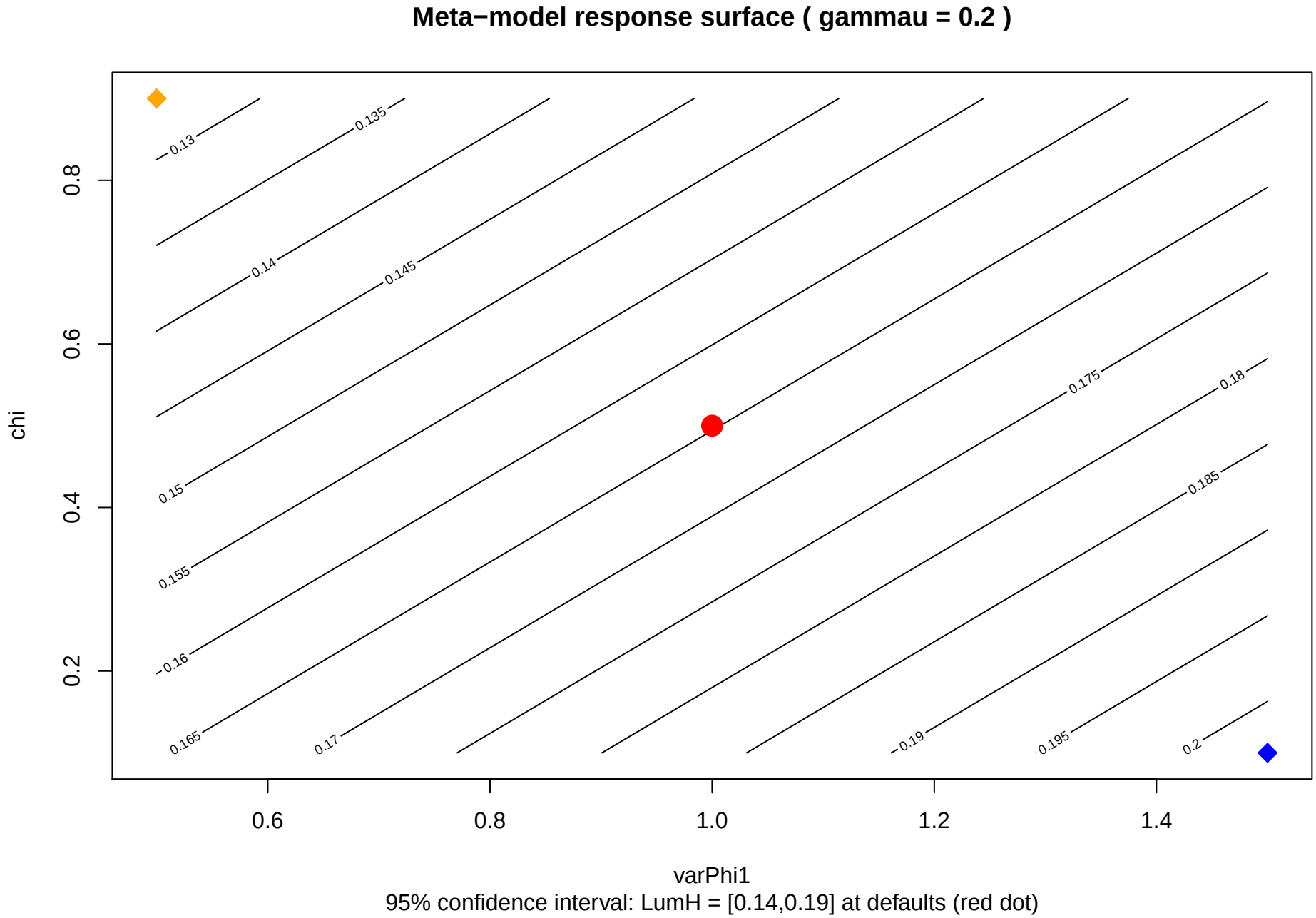

Meta−model response for parameter 'gammau'
LumH
0.25
0.20
0.15
0.10
0.10
0.15
0.20
0.25
0.30
gammau
Dotted lines at 95% confidence interval

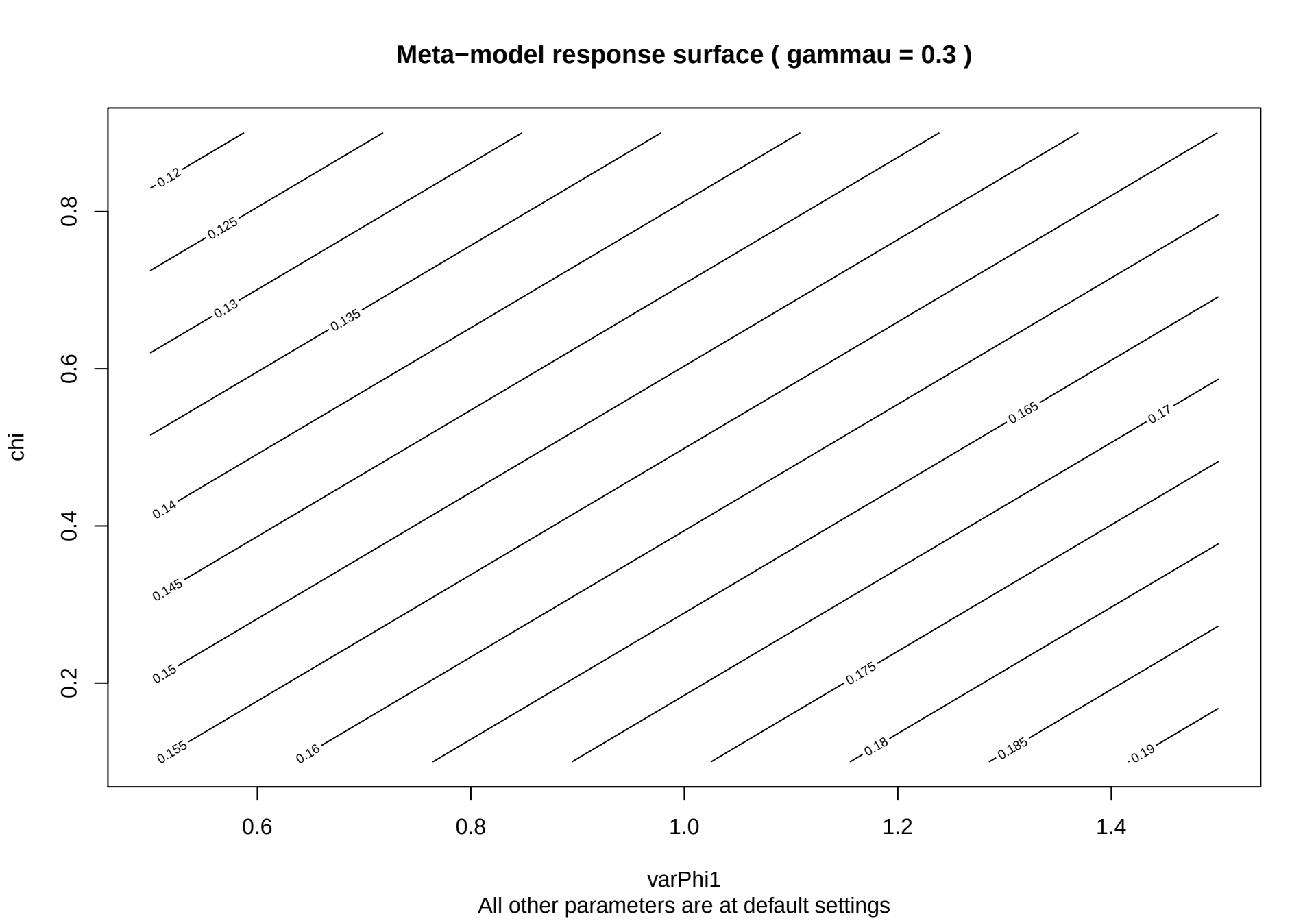

Meta−model response surface (gammau = 0.1)
0.20
0.18
0.16
0.14
LumH
0.6
0.8
1.0
1.2
1.4
varPhi1
0.2
0.4
0.6
0.8
chi
All other parameters are at default settings


Meta−model response surface (gammau = 0.2)
0.20
0.18
0.16
0.14
LumH
0.6
0.8
1.0
1.2
1.4
varPhi1
0.2
0.4
0.6
0.8
chi
95% confidence interval: LumH = [0.14,0.19] at defaults (red dot)


Meta−model response surface (gammau = 0.3)
0.18
0.16
0.14
0.12
LumH
0.6
0.8
1.0
1.2
1.4
varPhi1
0.2
0.4
0.6
0.8
chi
All other parameters are at default settings


Meta−model response surface (gammau = 0.1)
chi
0.2
0.4
0.6
0.8
0.14
0.145
0.15
0.155
0.16
0.165
0.17
0.175
0.18
0.185
0.19
0.195
0.2
0.205
0.21
0.6
0.8
1.0
1.2
1.4
varPhi1
All other parameters are at default settings


Meta−model response surface (gammau = 0.2)
chi
0.2
0.4
0.6
0.8
0.6
0.8
1.0
1.2
1.4
varPhi1
95% confidence interval: LumH = [0.14,0.19] at defaults (red dot)
0.13
0.135
0.14
0.145
0.15
0.155
0.16
0.165
0.17
0.175
0.18
0.185
0.19
0.195
0.2


Meta−model response surface (gammau = 0.3)
chi
0.2
0.4
0.6
0.8
0.12
0.125
0.13
0.135
0.14
0.145
0.15
0.155
0.16
0.165
0.17
0.175
0.18
0.185
0.19
0.6
0.8
1.0
1.2
1.4
varPhi1
All other parameters are at default settings