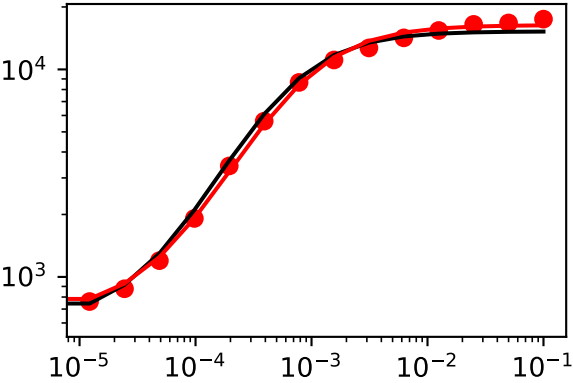


final simplex: (array([[6.64724576e+02, 1.63604504e+04, 1.25927422e+03, 1.16801306e+00, 1.98097617e+03, 3.75848412e+04, 2.24483953e-02, 8.43773297e-01, 6.35870204e+02, 3.12131523e+04, 5.01788231e-04, 5.50420789e-02, 3.15567492e+00, 2.84776898e+00, 1.44943322e+00], [6.64724576e+02, 1.63604504e+04, 1.25927422e+03, 1.16801306e+00, 1.98097617e+03, 3.75848412e+04, 2.24483952e-02, 8.43773298e-01, 6.35870204e+02, 3.12131523e+04, 5.01788231e-04, 5.50420798e-02, 3.15567492e+00, 2.84776898e+00, 1.44943322e+00], [6.64724576e+02, 1.63604504e+04, 1.25927422e+03, 1.16801306e+00, 1.98097617e+03, 3.75848411e+04, 2.24483952e-02, 8.43773298e-01, 6.35870203e+02, 3.12131523e+04, 5.01788231e-04, 5.50420804e-02, 3.15567492e+00, 2.84776898e+00, 1.44943322e+00], [6.64724576e+02, 1.63604504e+04, 1.25927422e+03, 1.16801306e+00, 1.98097617e+03, 3.75848412e+04, 2.24483953e-02, 8.43773297e-01, 6.35870204e+02, 3.12131523e+04, 5.01788231e-04, 5.50420799e-02, 3.15567492e+00, 2.84776898e+00, 1.44943322e+00], [6.64724576e+02, 1.63604504e+04, 1.25927422e+03, 1.16801306e+00, 1.98097617e+03, 3.75848412e+04, 2.24483953e-02, 8.43773297e-01, 6.35870204e+02, 3.12131523e+04, 5.01788231e-04, 5.50420793e-02, 3.15567492e+00, 2.84776898e+00, 1.44943322e+00], [6.64724576e+02, 1.63604504e+04, 1.25927422e+03, 1.16801306e+00, 1.98097617e+03, 3.75848412e+04, 2.24483952e-02, 8.43773298e-01, 6.35870204e+02, 3.12131523e+04, 5.01788231e-04, 5.50420798e-02, 3.15567492e+00, 2.84776898e+00, 1.44943322e+00], [6.64724576e+02, 1.63604504e+04, 1.25927422e+03, 1.16801306e+00, 1.98097617e+03, 3.75848412e+04, 2.24483952e-02, 8.43773298e-01, 6.35870204e+02, 3.12131523e+04, 5.01788231e-04, 5.50420777e-02, 3.15567492e+00, 2.84776898e+00, 1.44943322e+00], [6.64724576e+02, 1.63604504e+04, 1.25927422e+03, 1.16801306e+00, 1.98097617e+03, 3.75848412e+04, 2.24483952e-02, 8.43773298e-01, 6.35870204e+02, 3.12131523e+04, 5.01788231e-04, 5.50420795e-02, 3.15567492e+00, 2.84776898e+00, 1.44943322e+00], [6.64724576e+02, 1.63604504e+04, 1.25927422e+03, 1.16801306e+00, 1.98097617e+03, 3.75848412e+04, 2.24483952e-02, 8.43773297e-01, 6.35870204e+02, 3.12131523e+04, 5.01788231e-04, 5.50420805e-02, 3.15567492e+00, 2.84776898e+00, 1.44943322e+00], [6.64724576e+02, 1.63604504e+04, 1.25927422e+03, 1.16801306e+00, 1.98097617e+03, 3.75848412e+04, 2.24483953e-02, 8.43773297e-01, 6.35870204e+02, 3.12131523e+04, 5.01788231e-04, 5.50420781e-02, 3.15567492e+00, 2.84776898e+00, 1.44943322e+00], [6.64724576e+02, 1.63604504e+04, 1.25927422e+03, 1.16801306e+00, 1.98097617e+03, 3.75848412e+04, 2.24483952e-02, 8.43773298e-01, 6.35870204e+02, 3.12131523e+04, 5.01788231e-04, 5.50420788e-02, 3.15567492e+00, 2.84776898e+00, 1.44943322e+00], [6.64724576e+02, 1.63604504e+04, 1.25927422e+03, 1.16801306e+00, 1.98097617e+03, 3.75848412e+04, 2.24483953e-02, 8.43773297e-01, 6.35870204e+02, 3.12131523e+04, 5.01788231e-04, 5.50420789e-02, 3.15567492e+00, 2.84776898e+00, 1.44943322e+00], [6.64724576e+02, 1.63604504e+04, 1.25927422e+03, 1.16801306e+00, 1.98097617e+03, 3.75848412e+04, 2.24483953e-02, 8.43773297e-01, 6.35870205e+02, 3.12131523e+04, 5.01788231e-04, 5.50420794e-02, 3.15567492e+00, 2.84776898e+00, 1.44943322e+00], [6.64724576e+02, 1.63604504e+04, 1.25927422e+03, 1.16801306e+00, 1.98097617e+03, 3.75848411e+04, 2.24483951e-02, 8.43773298e-01, 6.35870203e+02, 3.12131523e+04, 5.01788231e-04, 5.50420813e-02, 3.15567492e+00, 2.84776898e+00, 1.44943322e+00]]), array([0.0522231, 0.0522231, 0.0522231, 0.0522231, 0.0522231, 0.0522231, 0.0522231, 0.0522231, 0.0522231, 0.0522231, 0.0522231, 0.0522231, 0.0522231, 0.0522231, 0.0522231]))

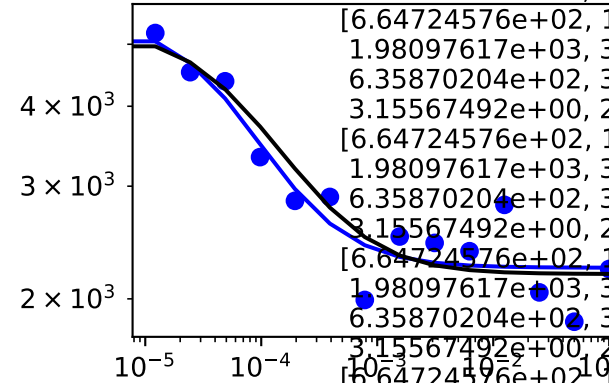
Initial Guess
Converged
Converged
Converged
Converged

['SM data type data plots for mutation', 'Output']

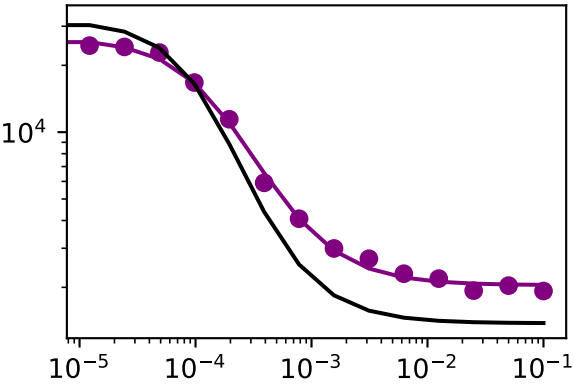
inducer -> sensor (GFP output)



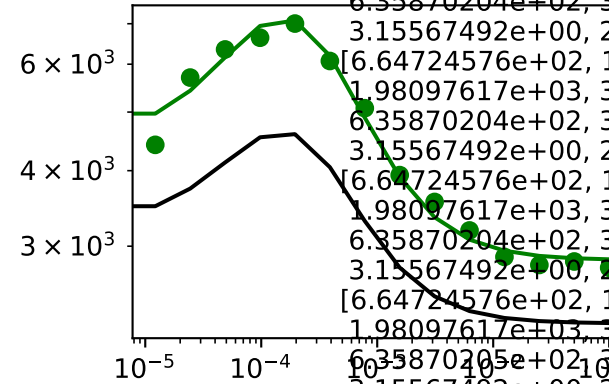
inducer -> S -| R (GFP output)



inducer -> S -| Output (GFP)



Full circuit with stripe



Across all four plots:

RSS (converged)=0.052

RSS (initial)=0.732

RSS (% reduction)=0.933

	epsilon	Initial_guesses	Converged
A_s	56.327473	608.397103	664.724576
B_s	1109.992748	15250.457700	16360.450448
C_s	-408.784832	1668.059050	1259.274218
N_s	-0.030920	1.198934	1.168013
A_r	1293.011479	687.964693	1980.976172
B_r	14087.229800	23497.611400	37584.841200
C_r	-0.039919	0.062367	0.022448
N_r	0.452042	0.391731	0.843773
A_h	45.263656	590.606548	635.870204
B_h	-4073.973417	35287.125700	31213.152283
C_h	-0.000028	0.000530	0.000502
A_o	-0.774788	0.829830	0.055042
B_o	-1.132495	4.288170	3.155675
C_o	-0.285453	3.133222	2.847769
N_o	-0.359585	1.809018	1.449433

fun: 0.052223095733307565
message: 'Optimization terminated successfully.'
nfev: 13917
nit: 10510
status: 0
success: True

x: array([6.64724576e+02, 1.63604504e+04, 1.25927422e+03, 1.16801306e+00, 1.98097617e+03, 3.75848412e+04, 2.24483953e-02, 8.43773297e-01, 6.35870204e+02, 3.12131523e+04, 5.01788231e-04, 5.50420789e-02, 3.15567492e+00, 2.84776898e+00, 1.44943322e+00])