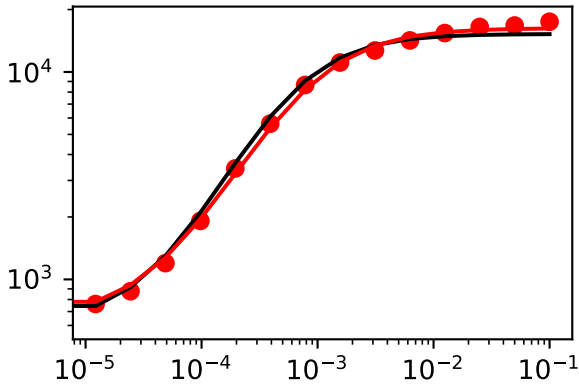
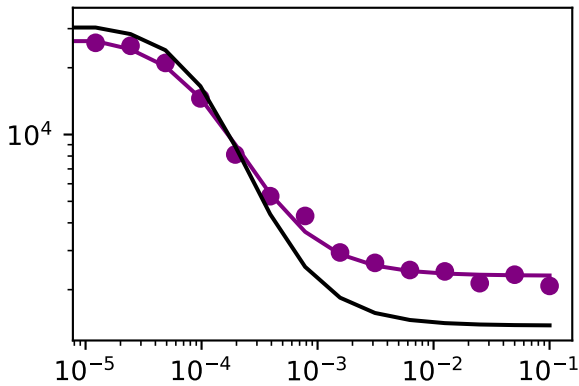


['SM data type data plots for mutation', 'Output']

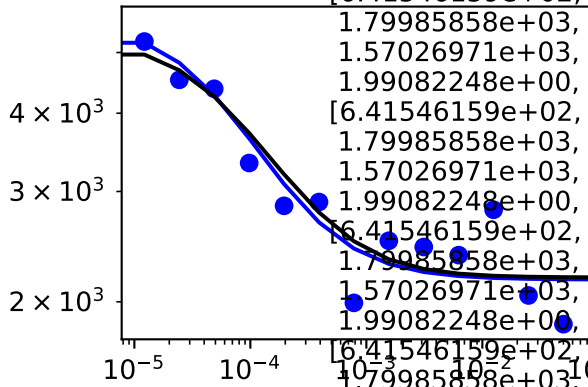
inducer -> sensor (GFP output)



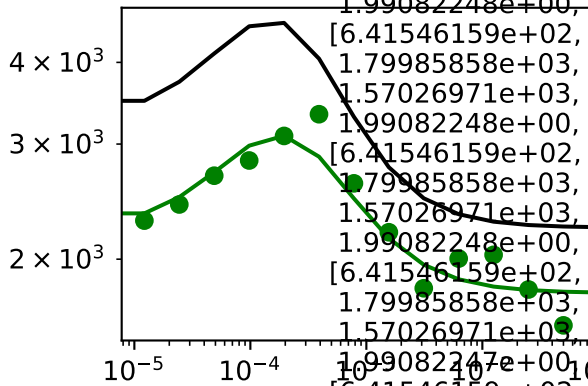
inducer -> S -| Output (GFP)



inducer -> S -| R (GFP output)



Full circuit with S -| R



Across all four plots:

RSS (converged)=0.07

RSS (initial)=0.767

RSS (% reduction)=0.916

	epsilon	Initial_guesses	Converged
A_s	33.149056	608.397103	641.546159
B_s	1020.221330	15250.457700	16270.679030
C_s	-455.047872	1668.059050	1213.011178
N_s	-0.078908	1.198934	1.120026
A_r	1111.893884	687.964693	1799.858577
B_r	-10196.706377	23497.611400	13300.905023
C_r	-0.057573	0.062367	0.004795
N_r	0.423969	0.391731	0.815700
A_h	979.663159	590.606548	1570.269707
B_h	-883.933348	35287.125700	34403.192352
C_h	0.000171	0.000530	0.000701
A_o	-0.256962	0.829830	0.572868
B_o	-2.297348	4.288170	1.990822
C_o	-0.109638	3.133222	3.023584
N_o	-0.241389	1.809018	1.567629

```
final simplex: (array([[6.41546159e+02, 1.62706790e+04, 1.21301118e+03, 1.12002563e+00,
1.79985858e+03, 1.33009050e+04, 4.79452734e-03, 8.15699504e-01,
1.57026971e+03, 3.44031924e+04, 7.01197658e-04, 5.72867978e-01,
1.99082248e+00, 3.02358372e+00, 1.56762908e+00],
[6.41546159e+02, 1.62706790e+04, 1.21301118e+03, 1.12002563e+00,
1.79985858e+03, 1.33009050e+04, 4.79452733e-03, 8.15699504e-01,
1.57026971e+03, 3.44031923e+04, 7.01197658e-04, 5.72867978e-01,
1.99082248e+00, 3.02358372e+00, 1.56762908e+00],
[6.41546159e+02, 1.62706790e+04, 1.21301118e+03, 1.12002563e+00,
1.79985858e+03, 1.33009050e+04, 4.79452734e-03, 8.15699504e-01,
1.57026971e+03, 3.44031923e+04, 7.01197657e-04, 5.72867977e-01,
1.99082249e+00, 3.02358373e+00, 1.56762908e+00],
[6.41546159e+02, 1.62706790e+04, 1.21301118e+03, 1.12002563e+00,
1.79985858e+03, 1.33009051e+04, 4.79452735e-03, 8.15699505e-01,
1.57026971e+03, 3.44031923e+04, 7.01197658e-04, 5.72867979e-01,
1.99082248e+00, 3.02358372e+00, 1.56762908e+00],
[6.41546159e+02, 1.62706790e+04, 1.21301118e+03, 1.12002563e+00,
1.79985858e+03, 1.33009050e+04, 4.79452733e-03, 8.15699505e-01,
1.57026971e+03, 3.44031923e+04, 7.01197658e-04, 5.72867978e-01,
1.99082248e+00, 3.02358372e+00, 1.56762908e+00],
[6.41546159e+02, 1.62706790e+04, 1.21301118e+03, 1.12002563e+00,
1.79985858e+03, 1.33009051e+04, 4.79452735e-03, 8.15699505e-01,
1.57026971e+03, 3.44031923e+04, 7.01197657e-04, 5.72867978e-01,
1.99082248e+00, 3.02358372e+00, 1.56762908e+00],
[6.41546159e+02, 1.62706790e+04, 1.21301118e+03, 1.12002563e+00,
1.79985858e+03, 1.33009050e+04, 4.79452733e-03, 8.15699505e-01,
1.57026971e+03, 3.44031923e+04, 7.01197658e-04, 5.72867978e-01,
1.99082248e+00, 3.02358372e+00, 1.56762908e+00],
[6.41546159e+02, 1.62706790e+04, 1.21301118e+03, 1.12002563e+00,
1.79985858e+03, 1.33009051e+04, 4.79452735e-03, 8.15699505e-01,
1.57026971e+03, 3.44031923e+04, 7.01197657e-04, 5.72867978e-01,
1.99082248e+00, 3.02358372e+00, 1.56762908e+00],
[6.41546159e+02, 1.62706790e+04, 1.21301118e+03, 1.12002563e+00,
1.79985858e+03, 1.33009050e+04, 4.79452734e-03, 8.15699504e-01,
1.57026971e+03, 3.44031924e+04, 7.01197659e-04, 5.72867977e-01,
1.99082248e+00, 3.02358372e+00, 1.56762908e+00],
[6.41546159e+02, 1.62706790e+04, 1.21301118e+03, 1.12002563e+00,
1.79985858e+03, 1.33009050e+04, 4.79452735e-03, 8.15699504e-01,
1.57026971e+03, 3.44031923e+04, 7.01197658e-04, 5.72867978e-01,
1.99082248e+00, 3.02358372e+00, 1.56762908e+00],
[6.41546159e+02, 1.62706790e+04, 1.21301118e+03, 1.12002563e+00,
1.79985858e+03, 1.33009051e+04, 4.79452736e-03, 8.15699504e-01,
1.57026971e+03, 3.44031924e+04, 7.01197658e-04, 5.72867978e-01,
1.99082248e+00, 3.02358372e+00, 1.56762908e+00],
[6.41546159e+02, 1.62706790e+04, 1.21301118e+03, 1.12002563e+00,
1.79985858e+03, 1.33009050e+04, 4.79452734e-03, 8.15699504e-01,
1.57026971e+03, 3.44031923e+04, 7.01197658e-04, 5.72867977e-01,
1.99082248e+00, 3.02358372e+00, 1.56762908e+00],
[6.41546159e+02, 1.62706790e+04, 1.21301118e+03, 1.12002563e+00,
1.79985858e+03, 1.33009050e+04, 4.79452735e-03, 8.15699504e-01,
1.57026971e+03, 3.44031923e+04, 7.01197659e-04, 5.72867979e-01,
1.99082247e+00, 3.02358372e+00, 1.56762908e+00],
[6.41546159e+02, 1.62706790e+04, 1.21301118e+03, 1.12002563e+00,
1.79985858e+03, 1.33009051e+04, 4.79452736e-03, 8.15699504e-01,
1.57026971e+03, 3.44031923e+04, 7.01197658e-04, 5.72867978e-01,
1.99082248e+00, 3.02358372e+00, 1.56762908e+00],
[6.41546159e+02, 1.62706790e+04, 1.21301118e+03, 1.12002563e+00,
1.79985858e+03, 1.33009050e+04, 4.79452734e-03, 8.15699504e-01,
1.57026971e+03, 3.44031924e+04, 7.01197659e-04, 5.72867979e-01,
1.99082247e+00, 3.02358372e+00, 1.56762908e+00],
[6.41546159e+02, 1.62706790e+04, 1.21301118e+03, 1.12002563e+00,
1.79985858e+03, 1.33009051e+04, 4.79452736e-03, 8.15699504e-01,
1.57026971e+03, 3.44031923e+04, 7.01197658e-04, 5.72867978e-01,
1.99082248e+00, 3.02358372e+00, 1.56762908e+00]]), array([0.07015664, 0.07015664, 0.07015664, 0.07015664, 0.07015664,
0.07015664, 0.07015664, 0.07015664, 0.07015664, 0.07015664, 0.07015664,
0.07015664]))
fun: 0.07015664446818655
message: 'Optimization terminated successfully.'
nfev: 15935
nit: 12049
status: 0
success: True
x: array([6.41546159e+02, 1.62706790e+04, 1.21301118e+03, 1.12002563e+00,
1.79985858e+03, 1.33009050e+04, 4.79452734e-03, 8.15699504e-01,
1.57026971e+03, 3.44031924e+04, 7.01197658e-04, 5.72867978e-01,
1.99082248e+00, 3.02358372e+00, 1.56762908e+00])
```