## inducer -> sensor (GFP output) inducer -> S - IR (GFP output) Converged Converged $10^{4}$ Converged $10^{4}$ Converged $6 \times 10^{3}$ $4 \times 10^{3}$ $3 \times 10^{3}$ $10^{3}$ time elapsed for this fit --- 40.79175138473511 seconds --- $10^{-3}$ $10^{-4}$ $10^{-3}$ $10^{-2}$ $10^{-4}$ $10^{-1}$ $10^{-2}$ 10<sup>-5</sup> $10^{-1}$ inducer -> S -| Output (GFP) Full circuit with stripe $6 \times 10^{3}$ $4 \times 10^{3}$ $10^{4}$ $3 \times 10^{3}$ 10<sup>-5</sup> $10^{-3}$ $10^{-2}$ $10^{-1}$ $10^{-5}$ $10^{-3}$ $10^{-2}$ $10^{-4}$ $10^{-4}$ $10^{-1}$ Across all four plots: RSS (converged)=1.652RSS (initial)=2.353RSS (% reduction)=0.588 epsilon Initial guesses Converged message: Optimization terminated successfully. A\_s 0.000000 650.714912 650.714912 success: True 0.000000 16259.979950 16259.979950 status: 0 $C_s$ 0.000000 1296.448889 1296.448889 fun: 1.6515062924967585 0.000000 1.154067 1.154067 x: [ 6.507e+02 1.626e+04 ... 1.965e+00 2.638e+00] 122.182115 2020.019216 2142.201331 nit: 16078 Br -3048.723196 23688.809187 20640.085991 nfev: 21368 0.010358 -0.008976 0.001382

['SM data type data plots for mutation', 'Sensor9', 'using model:', 'model']

0.597446

-0.000132

-1.322913

0.729575

0.455351

0.584842

0.276290

A h 3364.518747

B h 36959.640823

Νr

 $C_h$ 

Αо

Во

Со

0.910072

0.000929

1.673894

0.895342

2.657699

1.379953

2.361284

1.507519

0.000797

0.350982

1.624917

3.113050

1.964795

2.637574

143.802212 3508.320959

50238.271408 87197.912231

**Initial Guess**