Draft of the LP problem that will help us to find the minimum set of regulated reactions (regulated by Gene Expression) in order to minimize the Error between the Predicted and Observed Growth rate.

Draft of the LP Formulation….

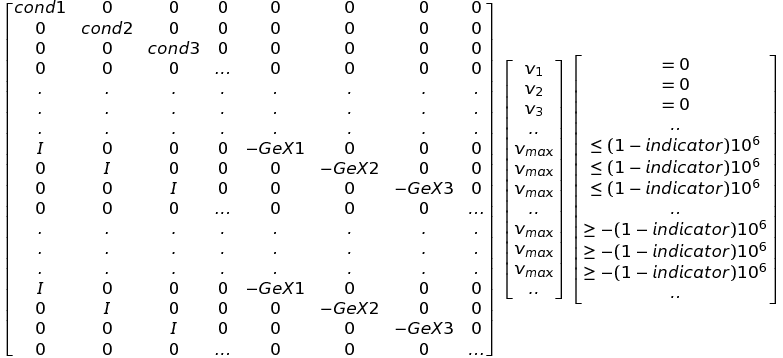
Minimize

If indicator = 1, then

if indicator = 0 , then

Where represents the 10 simulated conditions, is the biomass flux value (growth rate), is the stoichiometric matrix, is the vector of unknowns (fluxes), and is the vector of Upper bounds calculated by FVA for the Baseline condition, is the Gene Expression Ratio, and is the binary variable that indicates whether a reaction is regulated or not.

Possible matrix transformation...



second (similar) idea...

If = 0, then

if = 1 , then