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**Meritxell Sáez\*** (meritxell@math.ku.dk), Universitets Parken 5, 2100 Copenhagen, Denmark, and **Carsten Wiuf** and **Elisenda Feliu**. *Recovering a reaction network after linear elimination of species.*

Reaction networks can be highly complex, hence, elimination of some of the species may be desirable. Elimination of certain species in the network is closely linked to the procedure known as the quasi-steady state approximation, which is often employed to simplify the modeling equations. Under the quasi-steady state approximation, some reactions are assumed to occur at a much faster rate than other reactions, that is, there is a separation of time scales, such that a steady state effectively has been reached for the fast reactions. In this setting, the goal is to study the evolution of the species that have not reached steady state, as a new reaction network on their own.

Following the ideas introduced in (Feliu and Wiuf, 2012), where a method for the elimination of so-called non-interacting species is described, we give a graphical method to find a reaction network on the slow variables as well as their production rates. Our method reinterprets the system of equations obtained after substitution of the eliminated variables, as a new reaction network with certain kinetics. The procedure is based on the analysis of the species graph and the subgraph corresponding to the eliminated variables. (Received July 24, 2015)