

Workshop: *Deconstructing Biochemical Networks*
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*Exploiting Stoichiometric Structure for Steady
State Analysis*

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Abstract

The stoichiometry matrix typically provides a redundant description of a metabolic network. It can be shown that steady-state analysis depends only on the form of these redundancies and so for such analysis much of the content of the stoichiometry matrix is irrelevant. As a result, existing analytic techniques can be streamlined. An additional consequence is the construction of classes of networks which share the same stoichiometric properties, including reduced versions of networks which are stoichiometrically consistent. By reducing internal reactions in this manner while retaining exchange fluxes, one arrives at a minimal description of a metabolic input/output module.