

1106-VG-716 **Matthew D Johnston*** (mjohnston@wisc.edu), Department of Mathematics, University of Wisconsin-Madison, 480 Lincoln Drive, Madison, WI 53706. *Correspondence of regular and generalized mass action systems.*

Biochemical reaction networks are often extraordinary complicated, with hundreds of reactions and unknown rate kinetics. Mathematical tools are needed which can cut through this complexity and give results which are robust to unknown kinetic parameters. In this talk, we consider the dynamical properties of mass action systems which fall outside the scope of established results in chemical reaction network theory, but for which a correspondence can be made to a related generalized mass action system. The constructed generalized system contains different reaction kinetics than implied by the chemistry of the system, but has a strongly connected reaction graph. This approach has proven particularly effective at characterizing the steady states of biochemical networks such as MAPK cascades and signaling processes. (Received September 05, 2014)