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Casian Pantea* (cpantea@math.wvu.edu) and **Murad Banaji**. *Inheritance of bistability in mass action reaction networks.*

This talk focuses on the question of bistability, or existence of multiple (stable) positive equilibria, a dynamical property that underlies important cellular processes, and a recurring theme in recent work on reaction networks. Namely, we consider the question: "when can we conclude that a network admits multiple stable positive equilibria based on analysis of its subnetworks?" We identify a number of operations on reaction networks that preserve bistability as we build up the network, and we illustrate the power of this approach on the much-studied Huang-Ferrell MAPK cascade. Work in this direction falls within the theory of "motifs", an important theme in systems biology. (Received September 26, 2018)