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**David Swigon\*** ([swigon@pitt.edu](mailto:swigon@pitt.edu)), University of Pittsburgh, Department of Mathematics, 511 Thackeray Hall, Pittsburgh, PA 15260. *Dynamical equivalence of chemical reaction networks*. Preliminary report.

The dynamics of a network of interacting chemical species is frequently studied using a system of nonlinear ODEs with rate functions given by the principle of mass-action kinetics. Classical theorems of Horn, Jackson and Feinberg, and several new results of Craciun and Feinberg relate the existence, uniqueness and stability of equilibria of the reaction network to its topological properties. It will be shown that by considering smooth dynamical equivalence of dynamical systems and their relation to the reaction networks, one can find transformations that alter the reaction network topology without changing its dynamical properties. Such transformations can be used to enlarge the class of reaction networks to which the theorems can be applied. (Received February 09, 2009)