Abhishek Deshpande* (deshpande8@wisc.edu) and Gheorghe Craciun. Hypercycles: A reaction network perspective. Preliminary report.

Autocatalytic networks are believed to have intricate connections with the “origin of life”. Eigen and Schuster have analysed these connections in the context of the classical hypercycle. We investigate the dynamics of autocatalytic networks similar to the hypercycle from the view-point of reaction network theory. In particular, we consider the dynamics corresponding to the relative proportions of species in the network. We find that one can use results from reaction network theory to prove permanence or global stability for several kinds of autocatalytic networks. (Received July 16, 2019)