1158-92-157	**Patrick D. Shipman***, shipman@math.colostate.edu. *Mechanism-enabled population balance modeling and applications to pattern formation.*

Nucleation and growth processes lead to the formation of nanoparticles. Protein aggregates, such as those involved in neurological diseases, are examples of nanoparticles in biological systems. An outstanding mystery in the chemisty of particle formation is how to understand and control particle size distributions. Through "mechanism-enabled population balance modeling" we suggest crucial characteristics of particle-formation systems that allow for narrow particle-size distributions. We apply ME-PBM to systems involving vaporchromatic experiments, in which cell vacuolar pigments called anthocyanins form colored patterns. (Received February 28, 2020)