Agent-Based Models for Physics and Chemistry PAUL SEYBOLD, APS — A brief overview of the use of agent-based models for the simulation of the behaviors of complex systems will be given. It will be emphasized that these agent-based models are rule-based, rather than equation-based. Although the governing rules themselves may be quite simple, quite complex features can emerge from the simulations. Illustrations using stochastic cellular automata models of a chemicals reaction and the vapor-liquid phase transition will be presented.