1049-35-10 **Yuncheng You*** (you@math.usf.edu), Department of Mathematics and Statistics, University of South Florida, 4202 East Fowler Avenue, PHY 114, Tampa, FL 33620. *Exponential Attractors for Reversible Cubic Autocatalytic Reaction-Diffusion Systems.*

The existence of a global attractor and an exponential attractor for a class of reversible cubic autocatalytic reaction-diffusion systems represented by the Gray-Scott equations is proved. The key methodology is rescaling and grouping estimation combined with a new decomposition in showing the asymptotical compactness.

This result reveals that even though these reaction-diffusion systems feature oppositely signed, coupled nonlinear terms that do not satisfy the dissipative sign condition, the solution semiflow still admits dissipativity and all the trajectories converge to a compact, positively invariant subset of finite fractal dimension at a uniform exponential rate. (Received January 05, 2009)