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Junping Shi* (jxshix@wm.edu), Department of Mathematics, College of William and Mary, Williamsburg, VA 23187-8795. *Bifurcation of steady state solutions of reaction-diffusion equations with nonlinear boundary conditions.*

In many chemical or biological reactions, the chemical reaction or the biological bonding occurs in a narrow layer near the boundary or on the boundary surface (cell membrane), and the nonlinear reaction on the boundary makes a nonlinear boundary condition. A unified approach for the bifurcation of non-trivial steady state solutions of scalar reaction-diffusion equations with nonlinear boundary conditions is given, and applications to several important examples are also given. This talk is based on joint work with Ping Liu and Chan-Gyun Kim. (Received September 10, 2013)