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**Jerome Goddard II\*** (jgoddard@aum.edu) and **R. Shivaji** (shivaji@uncg.edu). *Existence, stability, and bifurcation results for positive solutions for classes of semilinear elliptic boundary value problems with nonlinear boundary conditions.*

In this talk, we will investigate the stability properties of nontrivial positive steady state solutions of semilinear initial-boundary value problems with nonlinear boundary conditions. In particular, we will employ a Principle of Linearized Stability for this class of problems to prove sufficient conditions for stability and instability of positive steady state solutions. These results shed some light on the combined effects of the reaction term and the boundary nonlinearity on stability properties. If time permits, we will also discuss existence results and provide complete bifurcation curves in the case of dimension one. (Received September 17, 2014)