1014-35-397   **Xianjin Chen*** (`xjchen@math.tamu.edu`), Department of Mathematics, Texas A&M University, College Station, TX 77843, and **Jianxin Zhou** (`jzhou@math.tamu.edu`), Department of Mathematics, Texas A&M University, College Station, TX 77843. *A Stable Method to Solve Nonlinear Elliptic PDE Systems for Multiple Vector Solitons.*

Vector solitons exist in many physical applications as unstable solutions to nonlinear elliptic PDE systems. In this talk, the speaker will present a stable method, its mathematical justification and numerical implementation to solve such problems for multiple vector solitons. In the last part of the talk, multiple numerical solutions and their instabilities will be illustrated. This research is supported in part by NSF Grant DMS-0311905. (Received September 14, 2005)