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**Xianjin Chen\*** (xjchen@math.tamu.edu), Department of Mathematics, Texas A&M University, Mailstop 3368, College Station, TX 77843-3368, and **Jianxin Zhou**. *Saddle point characterization and computation for strongly indefinite functionals*. Preliminary report.

We address the problem of characterizing and efficiently computing multiple unstable solutions to nonlinear elliptic systems whose energy functional are strongly indefinite. Consequently, the Morse indices of the corresponding saddle points are always infinite. A dual characterization on saddle points of a class of indefinite functionals whose Euler-Lagrange equations are noncooperative is presented and then extended to a more general case. Based on this characterization, an efficient algorithm is to devise. (Received August 29, 2006)