Abstract Submitted
for the MAR10 Meeting of
The American Physical Society

Study of stability and dynamical properties of Rosenau-Hyman compactons BOGDAN MIHAILA, Los Alamos National Laboratory, Los Alamos, USA, ANDRES CARDENAS, Department of Physics, New York University, NY, USA, FRED COOPER, Santa Fe Institute, Santa Fe, USA — We use Pade approximants to study numerically the stability and dynamical properties of K(2,2) Rosenau-Hyman compactons. We present a systematic derivation of Pade approximants for calculating the derivatives of smooth functions on an uniform grid and we illustrate our finding by improving upon traditional fourth-order finite-differences formulas. This study is intended as a stepping block towards a systematic numerical study of soliton solutions with a compact support of generalized Korteweg-de Vries equations.

Bogdan Mihaila
Los Alamos National Laboratory

Date submitted: 23 Dec 2009 Electronic form version 1.4