

1046-35-1109

Daniel J Arrigo* (darrigo@uca.edu), Department of Mathematics, 201 Donaghey Ave., Conway, AR 72035, and **David A Ekrut** and **Jackson R Fliss**. *First order compatibility of the Cubic Schrodinger equation.*

In this talk we consider the compatibility between the nonlinear Cubic Schrodinger equation and a general quasilinear system of partial differential equations (PDEs). Recently it has been proven that the compatibility between PDEs and their associated invariant surface conditions recovers the nonclassical method of symmetry reduction. This can be seen as a generalization of that method. Here we show that two classes of compatible equations exist. The first recovers the results obtainable by the classical symmetry method whereas the second is an entirely new class of compatible equations. We solve this in conjunction with the original system leading to a new reduction of the Cubic Schrodinger equation. (Received September 14, 2008)