1023-35-1911 **Danny Arrigo*** (`darrigo@uca.edu`), Department of Mathematics, University of Central Arkansas, Conway, AR 72035, and **Luis Suazo** and **Olabode Sule**. *Symmetry analysis of a two dimensional diffusion equation with a nonlinear source term.*

The classical and nonclassical symmetries of a linear diffusion equation with a nonlinear source term in $2 + 1$ dimensions are derived using Lie's invariance method. We show that there are a variety of source terms that involves the dependent variable and its derivatives that admit a nontrivial classical symmetry. We further show that the nonclassical method simply recovers the classical method showing that there are no nonclassical symmetries. Several examples are considered where reductions to 1+1 dimensional equations are obtained. (Received September 28, 2006)