1005-35-78 **William F Ames*** (`williamames@hotmail.com`), School of Mathematics, Georgia Institute of technology, Atlanta, GA 30332. *Comparison of Classical and Alternative Fluid Equations using Symmetry Methods.*

In reccent years alternative systems of equations to those of Navier-Stokes have been proposed to model viscous flows. Among these are found the Nehring equations and a modified form proposed by Straub and Lauster. Similarities and differences of these models are studied by means of the corresponding (Classical Lie) groups and implied invariant families of solutions. Various symmetry reductions are discussed and two of these are examined in detail. The symmetry calculations are carried out using a computer package due to Nucci. (Received January 29, 2005)