

Meeting: 1006, Lubbock, Texas, SS 16A, Special Session on Partial Differential Equation and Its Application in Biomedical Study

1006-35-128 **A I Ibragimov** and **J R Walton*** (jwalton@math.tamu.edu), Department of Mathematics, Texas A&M University, College Station, TX 77845-3368. *On the Existence of Traveling Wave Solutions for a Parabolic-Hyperbolic System Arising from a Size Dependent Population Model.*

We discuss the existence of traveling wave solutions to a nonlinear, parabolic-hyperbolic system of partial differential equations arising in a size dependent population dynamics model. In this model, size is not introduced through the customary structure parameter approach, but rather arises in a natural way from balance laws for both population mass and number densities. Motivation for consideration the system comes from modeling hypertrophy and hyperplasia in the context of soft tissue growth and remodeling as well as classical population dynamics. (Received February 11, 2005)