

Meeting: 1005, Newark, Delaware, SS 4A, Special Session on Asymptotic Behavior of Evolution Equations

1005-35-10 **Xuming Xie*** (xxie@jewel.morgan.edu), Department of Mathematics, Morgan State University, Baltimore, MD 21251, and **Robert Gilbert**, Department of Mathematical Sciences, University of Delaware. *Asymptotic Model of a Adaptive Visco-elastic Rod.*

Hegedus and Cowin considered an adaptive elasticity model for bone remodeling. In this paper, we propose a nonlinear adaptive visco-elasticity model for bone remodeling in order to account for the memory effect due to marrow and other viscous fluids in the bone. We first study the existence and uniqueness of solution to this model, then we apply the asymptotic expansion method to obtain a nonlinear adaptive visco-elastic rod model. (Received December 02, 2004)