

1056-92-701

L. R. Ritter* (lritter@spsu.edu), 1100 S. Marietta Pkwy, Mathematics, Marietta, GA 30060,
and **A. I. Ibragimov** and **J. R. Walton**. *The effects of boundary transport and anti-oxidants on
stability of a model of atherogenesis.*

Atherogenesis is the onset of the disease atherosclerosis. The disease is characterized by chronic inflammation and the accumulation of lipids and apoptotic cells in the walls of large muscular arteries. A principal component of the disease process involves the accumulation and oxidation of low density lipoproteins (LDL) within the arterial wall and its corruptive effect on the immune process. We propose a model consisting of a system of reaction-diffusion equations characterizing the interaction of various cells and chemical species involved in the disease process. A linear stability analysis using an energy estimate approach is presented. The effects of boundary transport of immune cells and LDL as well as the presence of anti-oxidants on stability are considered. (Received September 16, 2009)