1077-76-2077   **Antonio Mastroberardino*** (`axm62@psu.edu`), 4205 College Drive, Erie, PA 16563. *Mixed convection in viscoelastic flow due to a stretching sheet.* Preliminary report.

I will present an analysis of mixed convection boundary layer flow of an incompressible viscoelastic fluid - Walters liquid B - over a continuously stretching surface embedded in a porous medium. The momentum equation includes the effect of the buoyancy force due to free convection. The thermal equation includes the effects of radiation, viscous dissipation and internal heat generation/absorption. I will consider two general types of non-isothermal boundary conditions, namely, prescribed surface temperature and prescribed heat flux. The governing partial differential equations for the fluid flow and temperature are reduced to a nonlinear system of ordinary differential equations which are solved analytically using the homotopy analysis method (HAM). I will discuss the convergence of the HAM solutions and then the effects of various parameters on the skin friction coefficient and wall heat transfer. (Received September 21, 2011)