1056-34-496    **John V. Matthews\*** (`Matt-Matthews@utc.edu`), 415 EMCS Building, Dept 6956, 615 McCallie Ave, Chattanooga, TN 37403, and **Boris P. Belinskiy**. *Analysis and Numerical Solution of a Non-local ODE Motivated by Flutter.*

Motivated by the problem of aeroelastic instability, we study three connected Sturm-Liouville problems for nonlinear ordinary differential equations. A non-local term proposed by engineers is incorporated into one of these problems, and its role proves essential. Analysis for all three problems is given along with asymptotic results. The spectra and corresponding eigenfunctions are revealed numerically through a modification of simple shooting. (Received September 10, 2009)