

1107-35-365

Irena Lasiecka and **Xiaojun Wang*** (xwang13@memphis.edu), 366 Dunn Hall, Department of Mathematical Sciences, University of Memphis, Memphis, TN 38111. *The decay study of Moore-Gibson-Thompson(MGT) equation with memory.*

Moore-Gibson-Thompson(MGT) equation arises as a linear model for wave propagation in viscous thermally relaxing fluids. With memory, the Moore-Gibson-Thompson(MGT) equation reads

$$\tau u_{ttt} + \alpha u_{tt} + c^2 \mathcal{A}u + b \mathcal{A}u_t - \int_0^t g(t-s) \mathcal{A}w(s) ds = 0. \quad (1)$$

The convolution term $\int_0^t g(t-s) \mathcal{A}w(s) ds$ reflects the memory effects of materials with fading memory.

We classify the memory terms into three kinds and study how the memory creates damping mechanism and how it causes energy decay. (Received January 19, 2015)