General decay properties of abstract linear viscoelasticity

Monica Conti, monica.conti@polimi.it
Politecnico di Milano, Dipartimento di Matematica

We discuss the stability of a linear Volterra integro-differential equation of hyperbolic type, which can be viewed as an abstract version of the equation

$$\partial_{tt}u(t) - \Delta u(t) + \int_0^t \mu(s)\Delta u(t-s)ds = 0$$

describing the motion of linearly viscoelastic solids. We establish new relations between the decay rate of the solutions and the behaviour of the convolution kernel μ at infinity, for a much larger class of kernels than the one considered in the literature. This is a joint project with V. Pata.