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Energy decay of type III linear thermoelastic plates with memory.

We analyze the decay properties of the solution semigroups generated by an abstract version of the linear systems

$$\begin{cases} u_{tt} + \Delta^2 u + \Delta \alpha_t = 0 \\ \alpha_{tt} - \Delta \alpha - \Delta \alpha_t - \Delta u_t = 0 \end{cases}$$

and

$$\begin{cases} u_{tt} + \Delta^2 u + \Delta \alpha_t = 0 \\ \alpha_{tt} - \Delta \alpha - \int_0^\infty \mu(s) \Delta [\alpha(t) - \alpha(t-s)] ds - \Delta u_t = 0 \end{cases}$$

ruling the evolution of linear thermoelastic plates within the theory of heat conduction of type III. (Received September 17, 2013)