

**GENERALIZED THERMOELASTIC PLATE: WELL-POSEDNESS AND  
FREQUENCY ANALYSIS**

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ABSTRACT. We consider a linear generalized thermoelastic plate equations. For parameters  $(\alpha, \beta, \gamma) \in [0, 1]^3$  we analyze systems of the form

$$\begin{aligned}(I + \mu A^\gamma)u_{tt} + Au - A^\alpha \theta &= 0, \\ \theta_t + A^\beta \theta + A^\alpha u_t &= 0,\end{aligned}\tag{1}$$

with initial conditions

$$u(0) = u_0, u_t(0) = u_1(x), \theta(0) = \theta_0(x),$$

where  $A$  is a self-adjoint, non-negative operator on a separable Hilbert space  $H$ . For such problems we show the well-posedness with a semigroup approach and study the frequency behavior via diagonalization of the operator  $A$ .

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