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Wellposedness, control, and observability theories for partial differential equations

Stability of Wave Equation with Kelvin-Voigt Damping and Dynamic Boundary Delay Feedback

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Abstract: We consider wave equation with localized structural damping and dynamic boundary condition with time delay. Time delay effects often appear in physical models and practical applications and it is well-known that they can induce some instabilities. Under a suitable condition on the internal damping and the delay feedback, we will show that an exponential stability result holds. The proof is obtained by a frequency domain approach based on a well-known characterization of Huang and Prüss for the uniform stability of C_0-semigroups of contractions.

This is a joint work with Serge Nicaise.