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Unique continuation for variable-coefficient Timoshenko systems

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We consider a Timoshenko system with non-homogeneous coefficients and localized frictional damping. Our main result is a Unique Continuation Property (UCP) for the associated resolvent equation, implying that solutions vanishing on the damped region are identically zero and excluding imaginary eigenvalues, which yields strong stability of the contraction semigroup. Using suitable observability inequalities together with resolvent estimates, we derive decay rates, which are exponential or polynomial depending on the interaction between the variable coefficients and the damping support.

References

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