



Seminars on Differential Equations (2018.1)

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VISCOELASTIC AND THERMOELASTIC EFFECTS IN BEAMS OF TIMOSHENKO TYPE

Abstract

In this talk we are going to discuss on the mathematical modeling as well as some stability results for Timoshenko beams under viscoelastic and thermoelastic effects. We first deal with a viscoelastic model whose dissipation acts on shear force by using linear constitutive laws in viscoelasticity coming from physical point of view. Then, we are going to consider a thermo-viscoelastic model where a thermal law is applied to shear force whereas a viscoelastic law is taken in the bending moment. Some initial stability results shall be presented.

References

1. F. Ammar-Khodja, A. Benabdallah, J.E. Muñoz Rivera, R. Racke, Energy decay for Timoshenko systems of memory type, *Journal of Differential Equations*. 194 (2003), 82-115.
2. A.D. Drozdov, V.B. Kolmanovskii, *Stability in Viscoelasticity*, Amsterdam: North-Holland, 1994.
3. H. D. Fernández Sare, R. Racke, On the stability of damped Timoshenko systems: Cattaneo versus Fourier law, *Arch. Rational Mech. Anal.* 194 (2009), 221-251.
4. J. Prüss, *Evolutionary integral equations and applications*, Monographs in Mathematics, 87. Birkhäuser Verlag, Basel, 1993.

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Room 202 - Maths Department

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