EXPONENTIAL AND POLYNOMIAL STABILITY TO TIMOSHENKO SYSTEM WITH SECOND SOUND.

M. L. SANTOS AND D. S. ALMEIDA JÚNIOR. Faculdade de Matemática-UFPA-Pa-Brazil J. E. Muñoz Rivera - LNCC-RJ-Brazil

In this work, we consider the Timoshenko's models with second sound and we prove under suitable conditions on the coefficients that the system is exponentially stable. When the coefficient are arbitrary we show the lack of exponential stability and the corresponding polynomial decay. Finally we show that the polynomial rates found are optimal.

References

[1] HUANG, F., Characteristic conditions for exponential stability of linear dynamical systems in Hilbert spaces, Ann. Diff. Eqs., Vol. 1 (1985), 43–56..

[2] J. E. MUÑOZ RIVERA AND R. RACKE, Global stability for damped Timoshenko systems. Discrete Cont. Dyn. Syst. 9 (6) (2003), 1625-1639.

[3] H.D. FERNANDEZ SARE AND REINHARD RACKE, On the stability of Damped Timoshenko Systems: Cattaneo versus Fourier law, Arch. Rational Mech. Anal. Vol. 194, (1), pages 221-251, (2009).

[4] PRÜSS, J., On the spectrum of C_0 -semigroups, Trans. AMS 284 (1984), 847–857