Stability Properties for Some Non-autonomous Dissipative Phenomena Proved by Families of Liapunov Functionals

Armando D'Anna and Gaetano Fiore *

Dip. di Matematica e Applicazioni, Fac. di Ingegneria
Università di Napoli, V. Claudio 21, 80125 Napoli

Abstract: We prove some new results regarding the boundedness, stability and attractivity of the solutions of a class of initial-boundary-value problems characterized by a quasi-linear third order equation which may contain time-dependent coefficients. The class includes equations arising in superconductor theory, and in the theory of viscoelastic materials. In the proof we use a family of Liapunov functionals W depending on two parameters, which we adapt to the 'error', i.e. to the size σ of the chosen neighbourhood of the null solution.