Dimitri Breda

Dipartimento di Matematica e Informatica, Università di Udine
dimitri.breda@dimi.uniud.it

Stability analysis of the Gurtin-MacCamy model

In this talk we propose a numerical scheme to investigate the stability of steady states of the nonlinear Gurtin-MacCamy system which is a basic model in population dynamics. In fact the analysis of stability is usually performed by the study of transcendental characteristic equations that are too difficult to approach by analytical methods. The method is based on the discretization of the infinitesimal generator associated to the semigroup of the solution operator by using pseudospectral differencing techniques. The method computes the rightmost characteristic roots and it is shown to converge with spectral accuracy behavior.

This is a joint work with Mimmo Iannelli from Dipartimento di Matematica, Università di Trento, Stefano Maset from Dipartimento di Matematica e Informatica, Università di Trieste and Rossana Vermiglio from Dipartimento di Matematica e Informatica, Università di Udine.