Stabilization of a Boussinesq system with generalized damping

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Abstract:
We study the stability properties of a family of Boussinesq systems proposed by J. L. Bona, M. Chen and J.-C. Saut to describe the two-way propagation of small amplitude gravity waves on the surface of water in a canal, when generalized damping operators are introduced in each equation. By means of spectral analysis and Fourier expansion, we prove that the solutions of the linearized system decay uniformly or not to zero. In the uniform decay case, we show that the same property holds for the nonlinear system.

Joint work with Sorin Micu from University of Craiova.