
ADEMIR PAZOTO, Federal University of Rio de Janeiro (UFRJ)

Control and Stabilization for a coupled system of linear Benjamin-Bona-Mahony type equations

We analyze the boundary controllability and stabilization properties of the linearized Boussinesq system of BBM-BBM type introduced by J. Bona, M. Chen and J.-C. Saut as a model for the motion of small amplitude long waves on the surface of an ideal fluid.

By means of a careful spectral analysis of the operator associated with the state equations we show that the system is approximately controllable but not spectrally controllable. This means that no finite linear nontrivial combination of eigenvectors can be driven to zero in finite time.

We also propose several dissipation mechanisms leading to systems for which one has both the existence of solutions and a nonincreasing norm. It is shown that all the trajectories are attracted by the origin provided that the Unique Continuation Property holds.