

Critical Length Phenomenon For a Class of Dispersive Systems.

Rio de Janeiro, 23 de Novembro de 2017

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Abstract: In this talk we will prove that boundary controllability of a class of dispersive systems, namely,

$$\begin{cases} u_t + u_{xxx} + f(u, v)_x = 0 \\ v_t + v_{xxx} + g(u, v)_x = 0, \end{cases} \quad (1)$$

with two sets of boundary conditions (Dirichlet–Neumann and Neumann boundary conditions) is equivalent to the existence of the so-called *critical length phenomenon*.

Among the models that are in the representation (1), we will highlight two of them: *Boussinesq system of KdV–KdV type* and *Gear–Grimshaw system*.