CONTROL OF KAWAHARA EQUATION WITH OVERDETERMINATION CONDITION: THE UNBOUNDED CASES

Roberto Capistrano Filho[1], S. LUAN Soares de Sousa[1], and A. FERNANDO GALLEGO[2]

[1]Universidade Federal de Pernambuco
[2]Universidad Nacional de Colombia Sede Manizales

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Abstract

Abstract. In this manuscript we consider the internal control problem for the fifth order KdV type equation, commonly called the Kawahara equation, on unbounded domains. Precisely, under certain hypotheses over the initial and boundary data, we are able to prove that there exists an internal control input such that solutions of the Kawahara equation satisfies an integral overdetermination condition. This condition is satisfied when the domain of the Kawahara equation is posed in the real line, left half-line and right half-line. Moreover, we are also able to prove that there exists a minimal time in which the integral overdetermination condition is satisfied. Finally, we show a type of exact controllability associated with the "mass" of the Kawahara equation posed in the half-line.

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