# Coloquio Inst-Mat

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# Sistemas de transmisión de ondas a través de interfaces no convexa

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## Abstract

We study a wave equation acting in an open bounded subset of $\mathbb{R}^2$ where the wave speed is assumed to be constant in each one of two sub-domains, separated by a smooth and possibly non-convex interface.

We deal with the construction of Carleman weights for the wave operator, allowing generalizations of previous results to the case of an interface that is not necessarily the boundary of a convex set. Indeed, using the orthogonal projection onto this interface, we define convex functions satisfying the transmission conditions imposed by the equation, such that, under some hypothesis on the sign of the jump of the wave speed, can be used as Carleman weights.

We present generalizations to more general geometries, to the $n$-dimensional case, and applications to the inverse problem of recovering a space-dependent potential of the equation.

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