

# STABILITY ESTIMATE IN RECOVERING A FIRST ORDER COEFFICIENT IN A NON-SELF-ADJOINT WAVE EQUATION FROM DIRICHLET-TO-NEUMANN MAP

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**ABSTRACT.** In this work we focus on the study of an inverse problem for a non-self-adjoint hyperbolic equation. More precisely, we attempt to stably recover a first order coefficient appearing in a wave equation from the knowledge of Neumann boundary data. We show in dimension  $n$  greater than two, a stability estimate of Hölder type for the inverse problem under consideration. The proof involves the reduction to an auxiliary inverse problem for an electro-magnetic wave equation and the use of an appropriate Carleman estimate.

**Keywords:** Inverse problem, Stability result, Dirichlet-to-Neumann map, Carleman estimate.