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Title: Observability properties of wave and plate equations with rough coefficients: a new approach to deal with interfaces

Abstract: The goal of this article is to propose a new approach to address observability issues for wave and plate equations with rough coefficients, including the case of interfaces, under suitable geometric assumptions. Our approach relies on the fact that rough coefficients can be approximated by smooth coefficients, and on the fact, that in few cases, we can prove observability estimates for wave and plate equations with an observability constant that depends only on the L^∞ norm of the coefficient and a suitable structural assumption - which will take the form of the multiplier condition in the sense of distributions. We can then prove observability properties for rough coefficients, including interfaces, by choosing a suitable regularization of the coefficients, and passing to the limit in the observability properties derived in the cases of smooth coefficients.
This is a joint work with Alex Imba, Alberto Mercado, and Axel Osses.