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Title. Hautus-type controllability criteria for linear one-dimensional hyperbolic systems

Abstract. In this talk, we will present some recently obtained Hautus-type approximate and exact controllability conditions in L^p for a class of linear one-dimensional hyperbolic systems. After presenting the problem and related works, we will detail the main techniques used in the proof of our main controllability results. We first proceed by reformulating the controllability problem in an equivalent way in terms of the control of linear difference equations. Then, instead of following the standard approach in the control of PDEs based on proving an observability inequality, we make use of realization theory in order to express controllability properties in terms of solving (exactly or approximately) a Bézout identity over a suitable functional space, which can in turn be related to Hautus-type conditions. This talk is based on a joint work with Yacine Chitour, Sébastien Fueyo, and Mario Sigalotti.