

**Control and inverse problems  
for degenerate parabolic equations in dimension two**  
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The behavior of degenerate parabolic operators, unlike uniformly parabolic ones, is not described by a comprehensive theory at least as far as controllability issues and stability estimates for inverse problems are concerned. There are, however, a few classes of degenerate parabolic operators for which a substantial body of results is now available. In this talk, we will focus on two such classes, namely operators that degenerate at the boundary of the space domain, and operators of Grushin type that degenerate in the interior. For the former class, we will discuss observability and controllability results commenting, in particular, on the blow-up of the observability constant as the degeneracy exponent approaches the noncontrollability threshold. For the latter, we will concentrate on the connections between observability and Lipschitz stability estimates for the reconstruction of source terms and coefficients. The common feature of our approach to these two different kinds of operators is represented by Carleman estimates which - though playing different roles - are decisive for our analysis.