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Title: Some advances in the H^1 controllability of some 1D bilinear Schrödinger equations.

Abstract: We consider the exact controllability for Schrödinger equations in an interval and more specifically the Dirichlet case and the periodic case (with Zeeman-type effect to break multiple eigenvalues). Based on a reduction to a moment problem, following Beauchard and Laurent, our strategy exploits a well known phenomenon already noted in the seminal work by Ball-Marsden-Slemrod: The controllability is not possible if the control potential is too regular. Here instead of considering loss of regularity at the boundaries, we consider internal points. In a sense the boundary conditions are not as relevant (This is a joint work with Alessandro Duca from INRIA Nancy).