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Minimal time for the approximate bilinear control of Schrödinger equations

The topic of this talk is in the area of quantum control to which we give a very brief introduction before discussing the result announced in the title. The purpose of the research is to delineate what can be accomplished by the application of classical fields; in particular, whether control can be achieved in arbitrarily small time. Departing from a result by Boscain et al., which ensures approximate controllability in (potentially) large time, we present a large class of quantum systems for which we show that approximate control fails in small time, and that this failure is (essentially) independent of the initial state.

Joint work with K. Beauchard (ENS Rennes) and J.-M. Coron (Paris 6).