

Some recent advances on time optimal control problems for infinite dimensional systems

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We consider the time optimal control problem, with a point target, for a class of infinite dimensional systems with a dynamics governed by an abstract heat or Schrödinger type equation. The main results establish a Pontryagin type maximum principle (for the Schrödinger case) and give sufficient conditions for the bang-bang property of optimal controls (for both types of systems). The results are then applied to some systems governed by partial differential equations. The paper ends by a discussion of possible extensions and by stating some open problems.

The main part of the presented results have been obtained in [1] and [2].

References

- [1] *S. Micu, I. Roventa, M. Tucsnak*: Time optimal boundary controls for the heat equation. *J. Funct. Anal.* *263* (2012), 25–49.
- [2] *J. Lohéac, M. Tucsnak*: Maximum principle and bang-bang property of time optimal controls for Schrödinger type systems, submitted.