ALPEN-ADRIA UNIVERSITÄT KLAGENFURT

INVITATION TO THE DOCTORAL SEMINAR

On Polynomial Turnpike Estimates in Infinite-Dimensional Optimal Control Problems

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Chaired by Viktoriia Grushkovska | Department of Mathematics

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HS 11

ABSTRACT

The turnpike phenomenon, first discovered in capital accumulation theory, plays a significant role in optimal control theory and its applications. It is well known that broad classes of optimal control problems with exponential stabilizability and observability properties admit exponential turnpike estimates over long time intervals. In this talk, we consider an optimal control problem for hyperbolic infinite-dimensional systems with a quadratic cost. The system under consideration is neither exactly controllable in the natural energy space nor exponentially stabilizable. In this setting, we establish a polynomial turnpike estimate in suitable interpolation spaces. To the best of our knowledge, this is the first reported pointwise turnpike result exhibiting polynomial rather than exponential decay. The results are illustrated using a physical example of a controlled rotating flexible beam. This talk is based on joint work with Emmanuel Trélat (Sorbonne Université, Paris).

We hope to see you there!