

OPTIMAL CONTROL PROBLEMS

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ABSTRACT

Optimal Control Problems (OCP) are mathematically defined by the minimisation of a functional subject to ordinary or partial differential equations. They may though adopt different forms and solution strategies depending on the expression of the functional and the presence of additional constraints.

OCPs arise in many practical problems in engineering, with applications that span robotics, aeronautics, or bioengineering. Recently, these problems have also been applied to solve inverse problems for inferring model parameters and material properties. This session invites researchers that focus on salient and novel applications of OCPs, contribute to their robust numerical solution, or study the underlying mathematical structure of the problem.

In particular, the session welcomes applications on

- Trajectory optimisation in robot manoeuvres
- Locomotion strategies of soft and rigid bodies
- Trajectory planning in aeronautics and automation
- Solution of inverse problems

and also welcomes also theoretical and numerical aspects such as

- Robust numerical solution strategies of adjoint and state equations
- Structure preserving integrators in OCPs
- Solution of OCPs with free final time or inequality constraints