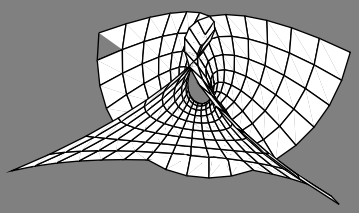

Einladung zum Mathematischen Kolloquium

Institut für Mathematik der Julius-Maximilians-Universität Würzburg

Prof. Alfio Borzi

(UNIVERSITÀ DEGLI STUDI DEL SANNIO BENEVENTO, Italy)

Advanced computational methodologies for solving infinite-dimensional quantum control problems

The control of quantum electronic states in physical systems has a host of challenging and foreseen applications in nano-sciences that requires the accurate and fast solution of quantum control problems governed by infinite-dimensional Schroedinger-type models. This task involves the development of solution methodologies that accommodate the nonlinear structure of the control mechanisms and the complex functional spaces where the control problems are usually formulated.

Recent advances in computational techniques are discussed that improve accuracy and efficiency through multilevel strategies, suitable discretization schemes, and appropriate choice of the functional spaces where the controls are sought. In this framework, first-order necessary optimality conditions and second-order sufficient optimality conditions are investigated for representative quantum systems arising in quantum optics, dipole transition, and in the transport of Bose–Einstein condensates.

A discussion on the investigation of the influence of uncertainty in the realization of controls concludes this talk.

Ort: HS 4 Zeit: Mittwoch, 01. Dezember 2010, um 17:00

Zu diesem Vortrag laden wir Sie herzlich ein.
Kaffee und Tee ab 16:30 im Sitzungsraum S106 im Mathematikgebäude.

Die Dozenten der Mathematik