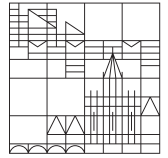# KWIM-Festtage

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Greedy Controllability of Reduced-Order Linear and Dynamical Systems

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Abstract. Often a dynamical system is characterized by one or more parameters describing physical features of the problem or geometrical configurations of the computational domain. As a consequence, by assuming that the system is controllable, corresponding to different parameter values, a range of optimal controls exists. The goal of the proposed approach is to avoid the computation of a control function for any instance of the parameters. The greedy controllability consists in the selection of the most representative values of the parameters that allows a rapid approximation of the control function for any desired new parameter value, ensuring that the system is steered to the target within a certain accuracy. By proposing the Reduced Basis method (an efficient model order reduction technique) in this framework, the computational costs are drastically reduced and the efficiency of the greedy controllability approach is significantly improved.