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Design of low-dimensional controllers for high-dimensional systems

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This talk presents the design of reduced-order controllers for large-scale dynamical systems. The objective is to develop efficient control strategies that ensure stability and robustness with reduced computational complexity. By leveraging the concept of partial pole placement, which involves placing a subset of the closed-loop system's poles, this study aims to strike a balance between reduced-order modeling and control effectiveness. The proposed approach addresses the challenges posed by high-dimensional systems and provides a systematic framework for controller design. Two case studies are investigated in detail: time-delay systems and ODE-reaction-diffusion interconnections.

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