数学与系统科学研究院学术报告

报告题目：Perturbation theory of boundary value problems and approximate controllability of neutral partial differential systems with state and input delays in Banach spaces

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摘要:

Controllability is an important property of systems. In this talk, the well-posedness of perturbed boundary-value problems is developed using a semigroup approach and a useful variation of constants formula for the solutions is derived. Drawing from this formula, necessary and sufficient conditions for the approximate controllability of perturbed boundary control problems are obtained, using the feedback theory of well-posed and regular linear systems developed by Salamon, Staffans and Weiss. As an application, the approximate controllability of a large class of neutral partial differential equations in Banach spaces is investigated. Some examples, including the case of time-delay systems with finitedimensional delay-free dynamics, which widely exist in engineering, are given.