CONTROL THEORY FOR PARTIAL DIFFERENTIAL EQUATIONS: CONTINUOUS AND APPROXIMATION THEORIES

ABSTRACT PARABOLIC SYSTEMS

> IRENA LASIECKA ROBERTO TRIGGIANI

Control Theory for Partial Differential Equations: Volume 1, Abstract Parabolic Systems: Continuous and Approximation Theories (Encyclopedia of Mathematics and its Applications)

By Irena Lasiecka, Roberto Triggiani



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This is the first volume of a comprehensive and up-to-date treatment of quadratic optimal control theory for partial differential equations over a finite or infinite time horizon, and related differential (integral) and algebraic Riccati equations. The authors describe both continuous theory and numerical approximation. They use an abstract space, operator theoretic approach, based on semigroups methods and unifying across a few basic classes of evolution. The various abstract frameworks are motivated by, and ultimately directed to, partial differential equations with boundary/point control. Volume I includes the abstract parabolic theory (continuous theory and numerical approximation theory) for the finite and infinite cases and corresponding PDE illustrations, and presents numerous new results. These volumes will appeal to graduate students and researchers in pure and applied mathematics and theoretical engineering with an interest in optimal control problems.

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