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	Nota di contenuto	Parabolic PDE Constrained Optimization Problems -- Two-Grid Newton-Picard Inexact SQP -- Structure Exploiting Solution of QPs -- Applications and Numerical Results.
	Sommario/riassunto	Andreas Potschka discusses a direct multiple shooting method for dynamic optimization problems constrained by nonlinear, possibly time-periodic, parabolic partial differential equations. In contrast to indirect methods, this approach automatically computes adjoint derivatives without requiring the user to formulate adjoint equations, which can be time-consuming and error-prone. The author describes and analyzes in detail a globalized inexact Sequential Quadratic Programming method that exploits the mathematical structures of this approach and problem class for fast numerical performance. The book features applications, including results for a real-world chemical engineering separation problem. Contents · Parabolic PDE Constrained Optimization Problems · Two-Grid Newton-Picard Inexact SQP · Structure Exploiting Solution of QPs · Applications and Numerical Results Target Groups · Researchers and students in the fields of mathematics, information systems, and scientific computing · Users with PDE

constrained optimization problems, in particular in (bio-)chemical engineering   The Author Dr. Andreas Potschka is a postdoctoral researcher in the Simulation and Optimization group of Prof. Dr. Dres. h. c. Hans Georg Bock at the Interdisciplinary Center for Scientific Computing, Heidelberg University. He is the head of the research group Model-Based Optimizing Control.