

Zeitschrift: L'Enseignement Mathématique
Herausgeber: Commission Internationale de l'Enseignement Mathématique
Band: 49 (2003)
Heft: 3-4: L'ENSEIGNEMENT MATHÉMATIQUE

Kapitel: Calcul des variations et contrôle optimal

Nutzungsbedingungen

Die ETH-Bibliothek ist die Anbieterin der digitalisierten Zeitschriften auf E-Periodica. Sie besitzt keine Urheberrechte an den Zeitschriften und ist nicht verantwortlich für deren Inhalte. Die Rechte liegen in der Regel bei den Herausgebern beziehungsweise den externen Rechteinhabern. Das Veröffentlichen von Bildern in Print- und Online-Publikationen sowie auf Social Media-Kanälen oder Webseiten ist nur mit vorheriger Genehmigung der Rechteinhaber erlaubt. [Mehr erfahren](#)

Conditions d'utilisation

L'ETH Library est le fournisseur des revues numérisées. Elle ne détient aucun droit d'auteur sur les revues et n'est pas responsable de leur contenu. En règle générale, les droits sont détenus par les éditeurs ou les détenteurs de droits externes. La reproduction d'images dans des publications imprimées ou en ligne ainsi que sur des canaux de médias sociaux ou des sites web n'est autorisée qu'avec l'accord préalable des détenteurs des droits. [En savoir plus](#)

Terms of use

The ETH Library is the provider of the digitised journals. It does not own any copyrights to the journals and is not responsible for their content. The rights usually lie with the publishers or the external rights holders. Publishing images in print and online publications, as well as on social media channels or websites, is only permitted with the prior consent of the rights holders. [Find out more](#)

Download PDF: 15.08.2025

ETH-Bibliothek Zürich, E-Periodica, <https://www.e-periodica.ch>

Théorie des opérateurs

G. BELITSKII, V. TKACHENKO. — **One-dimensional functional equations.** — Operator theory: advances and applications, vol. 144. — Un vol. relié, 17×24, de xiv, 206 p. — ISBN 3-7643-0084-1. — Prix: SFr. 156.00. — Birkhäuser, Basel, 2003.

This monograph is devoted to the study of functional equations with the transformed argument on the real line and on the unit circle. Such equations systematically arise in dynamical systems, differential equations, probabilities, singularities of smooth mappings, and other areas. The purpose of the book is to present modern methods and new results in the subject, with an emphasis on a connection between local and global solvability. The general concepts developed in the book are applicable to multidimensional functional equations. Some of the methods are presented for the first time in the monograph literature, in particular, a functional parametrization of local mappings, the gluing of local solutions, and a decomposition method.

Reinhard MENNICKEN, Manfred MÖLLER. — **Non-self-adjoint boundary eigenvalue problems.** — North-Holland mathematics studies, vol. 192. — Un vol. relié, 17×24,5, de xviii, 500 p. — ISBN 0-444-51447-3. — Prix: € 105.00. — Elsevier, Amsterdam, 2003.

This monograph provides a comprehensive treatment of expansion theorems for regular systems of first order differential equations and n -th order ordinary differential equations. In 10 chapters and one appendix, it provides a comprehensive treatment from abstract foundations to applications in physics and engineering. The focus is on non-self-adjoint problems. Bounded operators are associated to these problems, and Chapter 1 provides an in depth investigation of eigenfunctions and associated functions for bounded Fredholm valued operators in Banach spaces. Since every n -th order differential equation is equivalent to a first order system, the main techniques are developed for systems. Asymptotic fundamental systems are derived for a large class of systems of differential equations. Together with boundary conditions, which may depend polynomially on the eigenvalue parameter, this leads to the definition of Birkhoff and Stone regular eigenvalue problems. An effort is made to make the conditions relatively easily verifiable... the contour integral method and estimates of the resolvent are used to prove expansion theorems. For Stone regular problems, not all functions are expandable, and again relatively easily verifiable conditions are given, in terms of auxiliary boundary conditions, for functions to be expandable. The last chapter deals exclusively with applications.

Calcul des variations et contrôle optimal

Gerhard-Wilhelm WEBER. — **Generalized semi-infinite optimization and related topics.** — Research and exposition in mathematics, vol. 29. — Un vol. broché, 17×24, de 361 p. — ISBN 3-88538-229-6. — Prix: € 40.00. — Heldermann Verlag, Lemgo, 2003.

A very general class of nonlinear programming programs became of increasing interest in the last years. The interest of the author focuses on these so-called generalized semi-infinite optimization problems. He studies basic properties and unfolding iterative concepts for approximately solving them and applies insight and methods to related problems from optimal control and discrete optimization. — *Contents:* Representations and optimality. — Topological and stability properties. — Concepts of iteration procedures. — Optimal control and discrete mathematics.