

<<用于边界值问题的拓扑不动点原理>>

图书基本信息

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内容概要

安德里斯编著的《用于边界值问题的拓扑不动点原理》旨在系统介绍凸空间上的单值和多值映射的拓扑不动点理论。

内容包括常微分方程的边界值问题和在动力系统中的应用，是第一本用非度量空间讲述拓扑不动点理论的专著。

尽管理论上的讲述和书中精选的应用实例相结合，但本身具有很强的独立性。

本书利用不动点理论求微分方程的解，独具特色。

目次：理论背景；一般原理；在微分方程中的应用。

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章节摘录

版权页：插图： Our book is devoted to the topological fixed point theory both for single-valued and multivalued mappings in locally convex spaces , including its application to boundary value problems for ordinary differential equations (inclusions) and to (multivalued) dynamical systems . It is the first monograph dealing with the topological fixed point theory in non-metric spaces . Although the theoretical material was tentatively selected with respect to applications , we wished to have a self-consistent text (see the scheme below) . Therefore , we supplied three appendices concerning almost-periodic and derivo-periodic single-valued (multivalued) functions and (multivalued) fractals . The last topic which is quite new can be also regarded as a contribution to the fixed point theory in hyperspaces . Nevertheless , the reader is assumed to be at least partly familiar in some related sections with the notions like the Bochner integral , the Aumann multivalued integral , the Arzela-Ascoli lemma , the Gronwall inequality , the Brouwer degree , the Leray-Schauder degree , the topological (covering) dimension , the elements of homological algebra , Otherwise , one can use the recommended literature . Hence , in Chapter I , the topological and analytical background is built . Then , in Chapter II (and partly already in Chapter I) , topological principles necessary for applications are developed , namely : —the fixed point index theory (resp . the topological degree theory) , —the Lefschetz and the Nielsen theories both in absolute and relative cases , —periodic point theorems , —topological essentiality , —continuation-type theorems . All the above topics are related to various classes of mappings including compact absorbing contractions and condensing maps . Besides the (more powerful) homological approach , the approximation techniques are alternatively employed as well .

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编辑推荐

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