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Autore	Vallin Robert W
Titolo	The elements of Cantor sets : with applications / / Robert W. Vallin
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Edizione	[First edition.]
Descrizione fisica	1 online resource (248 p.)
Classificazione	MAT034000
Disciplina	515.8
Soggetti	Cantor sets Measure theory Mathematical analysis MATHEMATICS / Mathematical Analysis
Lingua di pubblicazione	Inglese
Formato	Materiale a stampa
Livello bibliografico	Monografia
Note generali	Description based upon print version of record.
Nota di bibliografia	Includes bibliographical references and index.
Nota di contenuto	Cover; Title Page; Copyright Page; CONTENTS; Foreword; Preface; Acknowledgments; Introduction; 1 A Quick Biography of Cantor; 2 Basics; 2.1 Review; Exercises; 3 Introducing the Cantor Set; 3.1 Some Definitions and Basics; 3.2 Size of a Cantor Set; 3.2.1 Cardinality; 3.2.2 Category; 3.2.3 Measure; 3.3 Large and Small; Exercises; 4 Cantor Sets and Continued Fractions; 4.1 Introducing Continued Fractions; 4.2 Constructing a Cantor Set; 4.3 Diophantine Equations; 4.4 Miscellaneous; Exercises; 5 p-adic Numbers and Valuations; 5.1 Some Abstract Algebra; 5.2 p-adic Numbers 5.2.1 An Analysis Point of View5.2.2 An Algebra Point of View; 5.3 p-adic Integers and Cantor Sets; 5.4 p-adic Rational Numbers; Exercises; 6 Self-Similar Objects; 6.1 The Meaning of Self-Similar; 6.2 Metric Spaces; 6.3 Sequences in (S, d); 6.4 Affine Transformations; 6.5 An Application for an IFS; Exercises; 7 Various Notions of Dimension; 7.1 Limit Supremum and Limit Infimum; 7.2 Topological Dimension; 7.3 Similarity Dimension; 7.4 Box-Counting Dimension; 7.5 Hausdorff Measure and Dimension; 7.6 Miscellaneous Notions of Dimension; Exercises; 8 Porosity and Thickness-Looking at the Gaps 8.1 The Porosity of a Set8.2 Symmetric Sets and Symmetric Porosity;

8.3 A New and Different Definition of Cantor Set; 8.4 Thickness of a Cantor Set; 8.5 Applying Thickness; 8.6 A Bit More on Thickness; 8.7 Porosity in a Metric Space; Exercises; 9 Creating Pathological Functions via  $\mathbb{C}$ ; 9.1 Sequences of Functions; 9.2 The Cantor Function; 9.3 Space-Filling Curves; 9.4 Baire Class One Functions; 9.5 Darboux Functions; 9.6 Linearly Continuous Functions; Exercises; 10 Generalizations and Applications; 10.1 Generalizing Cantor Sets; 10.2 Fat Cantor Sets; 10.3 Sums of Cantor Sets; 10.4 Differences of Cantor Sets; 10.5 Products of Cantor Sets; 10.6 Cantor Target; 10.7 Ana Sets; 10.8 Average Distance; 10.9 Non-Averaging Sets; 10.10 Cantor Series and Cantor Sets; 10.11 Liouville Numbers and Irrationality Exponents; 10.12 Sets of Sums of Convergent Alternating Series; 10.13 The Monty Hall Problem; 11 Epilogue; References; Index

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## Sommario/riassunto

"This book is a thorough introduction to the Cantor (Ternary) Set and its applications and brings together many of the topics (advanced calculus, probability, topology, and algebra) that mathematics students are required to study, but unfortunately are treated as separate ideas. This book successfully bridges the gap between how several mathematical fields interact using Cantor Sets as the common theme. While the book is mathematically self-contained, readers should be comfortable with mathematical formalism and have some experience in reading and writing mathematical proofs. Chapter coverage includes: a biography of Cantor; an introduction to the Cantor (Ternary) Set; Self-Similar Sets and Fractal Dimensions; sums of Cantor Sets; the role of Cantor Sets to create pathological functions; and additional topics such as continued fractions, Ana Sets, and  $p$ -adic numbers"--

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2. Record Nr.	UNINA9910735796703321
Autore	Kumar Vijay
Titolo	Advanced Materials for Solid State Lighting / / edited by Vijay Kumar, Vishal Sharma, Hendrik C. Swart
Pubbl/distr/stampa	Singapore : , : Springer Nature Singapore : , : Imprint : Springer, , 2023
ISBN	9789819941452 9819941458
Edizione	[1st ed. 2023.]
Descrizione fisica	1 online resource (405 pages)
Collana	Progress in Optical Science and Photonics, , 2363-510X ; ; 25
Altri autori (Persone)	SharmaVishal (Associate professor) SwartHendrik C
Disciplina	621.36
Soggetti	Optics Optical materials Nanotechnology Photonics Optical engineering Quantum dots Applied Optics Optical Materials Photonics and Optical Engineering Quantum Dots
Lingua di pubblicazione	Inglese
Formato	Materiale a stampa
Livello bibliografico	Monografia
Nota di contenuto	1. Rare earth doped inorganic materials for light-emitting applications -- 2. Charge transfer in rare-earth-doped inorganic materials -- 3. ZnO based phosphors materials -- 4. Dynamics of perovskite Titanite luminescent materials -- 5. Rare earth doped Ternary oxides materials for down-conversion and upconversion.
Sommario/riassunto	This book highlights the synthesis, luminescence, and applications of rare earth-doped phosphors materials for solid-state lighting. Solid-state lighting is turning into a leading technology in the lighting industry, permitting improvement in the fields from architectural to domestic applications. Driven with the aid of using ongoing multi-field research, solid-state lighting needs an improvement of various

technologies: efficient and reliable light-emitting devices, devices for new functionalities, and optical solutions for beam shaping. Noteworthy research endeavors were aimed to find out eco-friendly, better performance, cost, and energy-efficient phosphor materials for the application in solid-state lighting devices. Power phosphor materials with advanced optical and photoluminescence properties in a wide range of areas have shared the research efforts in this sector aimed in the direction of achieving better material features. Rare earth ion-doped phosphor materials have been the subject of scientific interest because of their significant applications in a variety of fields such as display devices, temperature sensors, solar cells, bio-imaging, and optoelectronics devices. This book covers the broad aspects of organic and inorganic materials based on phosphor materials and is beneficial to researchers involved in these areas. This book is specially designed to provide an introductory concept of luminescent materials, particularly man-made (artificial) phosphors in a language comprehensible to beginners and students. The book also includes some new materials with promising technologies and upgraded properties that expose new potential possibilities are also highlighted.

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