1. Record Nr. UNINA9910338254903321

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Titolo	Bodies of Constant Width : An Introduction to Convex Geometry with Applications / / by Horst Martini, Luis Montejano, Déborah Oliveros
Pubbl/distr/stampa	Cham : , : Springer International Publishing : , : Imprint : Birkhäuser, , 2019
ISBN	3-030-03868-8
Edizione	[1st ed. 2019.]
Descrizione fisica	1 online resource (XI, 486 p. 163 illus., 32 illus. in color.)
Disciplina	516.08
Soggetti	Convex geometry Discrete geometry Differential geometry Mathematical analysis Analysis (Mathematics) Combinatorics Topology Convex and Discrete Geometry Differential Geometry Analysis
Lingua di pubblicazione	Inglese
Formato	Materiale a stampa
Livello bibliografico	Monografia
Nota di contenuto	Introduction -- Convex Geometry -- Basic Properties of Bodies of Constant Width -- Figures of Constant Width -- Systems of Lines in the Plane -- Spindle Convexity -- Complete and Reduced Convex Bodies -- Examples and Constructions -- Sections of Bodies of Constant Width -- Bodies of Constant Width in Mikowski Spaces -- Bodies of Constant Width in Differential Geometry -- Mixed Volumes -- Bodies of Constant Width in Analysis -- Geometric Inequalities -- Bodies of Constant Width in Discrete Geometry -- Bodies of Constant Width in Topology -- Concepts Related to Constant Width -- Bodies of Constant Width in Art, Design, and Engineering.
Sommario/riassunto	This is the first comprehensive monograph to thoroughly investigate constant width bodies, which is a classic area of interest within convex geometry. It examines bodies of constant width from several points of

view, and, in doing so, shows surprising connections between various areas of mathematics. Concise explanations and detailed proofs demonstrate the many interesting properties and applications of these bodies. Numerous instructive diagrams are provided throughout to illustrate these concepts. An introduction to convexity theory is first provided, and the basic properties of constant width bodies are then presented. The book then delves into a number of related topics, which include Constant width bodies in convexity (sections and projections, complete and reduced sets, mixed volumes, and further partial fields) Sets of constant width in non-Euclidean geometries (in real Banach spaces, and in hyperbolic, spherical, and further non-Euclidean spaces) The concept of constant width in analysis (using Fourier series, spherical integration, and other related methods) Sets of constant width in differential geometry (using systems of lines and discussing notions like curvature, evolutes, etc.) Bodies of constant width in topology (hyperspaces, transnormal manifolds, fiber bundles, and related topics) The notion of constant width in discrete geometry (referring to geometric inequalities, packings and coverings, etc.) Technical applications, such as film projectors, the square-hole drill, and rotary engines Bodies of Constant Width: An Introduction to Convex Geometry with Applications will be a valuable resource for graduate and advanced undergraduate students studying convex geometry and related fields. Additionally, it will appeal to any mathematicians with a general interest in geometry.