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Titolo	Space-Filling Curves : An Introduction with Applications in Scientific Computing / / by Michael Bader
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Note generali	Description based upon print version of record.
Nota di bibliografia	Includes bibliographical references and index.
Nota di contenuto	Two Motivating Examples -- How to Construct Space-Filling Curves -- Grammar-Based Description of Space-Filling Curves -- Arithmetic Representation of Space-Filling Curves -- Approximating Polygons -- Sierpinski Curves -- Further Space-Filling Curves -- Space-Filling Curves in 3D -- Refinement Trees and Space-Filling Curves -- Parallelisation with Space-Filling Curves -- Locality Properties of Space-Filling Curves -- Sierpinski Curves on Triangular and Tetrahedral Meshes -- Case Study: Cache Efficient Algorithms for Matrix Operations -- Case Study: Numerical Simulation on Spacetree Grids Using Space-Filling Curves.- Further Applications of Space-Filling Curves.- Solutions to Selected Exercises.- References -- Index .
Sommario/riassunto	-The present book provides an introduction to using space-filling curves (SFC) as tools in scientific computing. Special focus is laid on the representation of SFC and on resulting algorithms. For example, grammar-based techniques are introduced for traversals of Cartesian

and octree-type meshes, and arithmetisation of SFC is explained to compute SFC mappings and indexings. -The locality properties of SFC are discussed in detail, together with their importance for algorithms. Templates for parallelisation and cache-efficient algorithms are presented to reflect the most important applications of SFC in scientific computing. Special attention is also given to the interplay of adaptive mesh refinement and SFC, including the structured refinement of triangular and tetrahedral grids. For each topic, a short overview is given on the most important publications and recent research activities.