1. Record Nr. UNINA9910555057803321

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Titolo	Geometric modeling of fractal forms for CAD / / Christian Gentil, Gilles Gouaty, Dmitry Sokolov
Pubbl/distr/stampa	London, England ; ; Hoboken, New Jersey : , : ISTE Ltd. : , : Wiley, , 2021 ©2021
ISBN	1-5231-4348-7 1-119-83174-1 1-119-83175-X 1-119-83172-5
Descrizione fisica	1 online resource (xiv, 226 pages)
Collana	Geometric modeling and applications set ; ; volume 5
Disciplina	620.004250285
Soggetti	Computer-aided design - Mathematics Fractals Electronic books.
Lingua di pubblicazione	Inglese
Formato	Materiale a stampa
Livello bibliografico	Monografia
Nota di bibliografia	Includes bibliographical references and index
Sommario/riassunto	Designing and controlling complex shapes like porous volumes and rough surfaces is a challenge. Fractal geometry is an interesting approach which considerably simplify the problem. Even though underlying concepts reduce the set possible shapes, they generate a surprising variety of shapes. In this book we present a formalism to design such complex objects for geometric aided geometry design applications. The goal of this formalism is to provide to the end user the possibility to manipulate fractal objects as a standard euclidean object with standard tools of CAD system. This formalism encompass curves, surfaces, volumes, as well as NURBS and subdivision surfaces. All theoretical and practical aspects are developed, from the design up to 3D printing