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Autore	Hubbert Simon
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Note generali	Description based upon print version of record.
Nota di bibliografia	Includes bibliographical references.
Nota di contenuto	Motivation and Background Functional Analysis -- The Spherical Basis Function Method -- Error Bounds via Duchon's Technique -- Radial Basis Functions for the Sphere -- Fast Iterative Solvers for PDEs on Spheres -- Parabolic PDEs on Spheres.
Sommario/riassunto	This book is the first to be devoted to the theory and applications of spherical (radial) basis functions (SBFs), which is rapidly emerging as one of the most promising techniques for solving problems where approximations are needed on the surface of a sphere. The aim of the book is to provide enough theoretical and practical details for the reader to be able to implement the SBF methods to solve real world problems. The authors stress the close connection between the theory

of SBFs and that of the more well-known family of radial basis functions (RBFs), which are well-established tools for solving approximation theory problems on more general domains. The unique solvability of the SBF interpolation method for data fitting problems is established and an in-depth investigation of its accuracy is provided. Two chapters are devoted to partial differential equations (PDEs). One deals with the practical implementation of an SBF-based solution to an elliptic PDE and another which describes an SBF approach for solving a parabolic time-dependent PDE, complete with error analysis. The theory developed is illuminated with numerical experiments throughout. Spherical Radial Basis Functions, Theory and Applications will be of interest to graduate students and researchers in mathematics and related fields such as the geophysical sciences and statistics.
