1.	Record Nr.	UNISA996466771603316
	Autore	Jorgensen Palle
	Titolo	Extensions of Positive Definite Functions [[electronic resource]] : Applications and Their Harmonic Analysis / / by Palle Jorgensen, Steen Pedersen, Feng Tian
	Pubbl/distr/stampa	Cham : , : Springer International Publishing : , : Imprint : Springer, , 2016
	ISBN	3-319-39780-X
	Edizione	[1st ed. 2016.]
	Descrizione fisica	1 online resource (XXVI, 231 p. 48 illus., 9 illus. in color.)
	Collana	Lecture Notes in Mathematics, , 0075-8434 ; ; 2160
	Disciplina	515.2433
	Soggetti	Harmonic analysis Topological groups Lie groups Fourier analysis Functional analysis Mathematical physics Probabilities Abstract Harmonic Analysis Topological Groups, Lie Groups Fourier Analysis Functional Analysis Mathematical Physics Probability Theory and Stochastic Processes
	Lingua di pubblicazione	Inglese
	Formato	Materiale a stampa
	Livello bibliografico	Monografia
	Nota di contenuto	Intro Foreword Preface Acknowledgments Contents List of Figures List of Tables Symbols 1 Introduction 1.1 Two Extension Problems 1.1.1 Where to Find It 1.2 Quantum Physics 1.3 Stochastic Processes 1.3.1 Early Roots 1.3.2 An Application of Lemma 1.1: A Positive Definite Function on an Infinite Dimensional Vector Space 1.4 Overview of Applications of RKHSs 1.4.1 Connections to Gaussian Processes 1.5 Earlier Papers 1.6 Organization 2 Extensions of Continuous Positive Definite Functions

	2.1 The RKHS HF 2.1.1 An Isometry 2.2 The Skew-Hermitian Operator D(F) in HF 2.2.1 The Case of Conjugations 2.2.2 Illustration: G=R, Correspondence Between the Two Extension Problems 2.3 Enlarging the Hilbert Space 2.4 Ext1(F) and Ext2(F) 2.4.1 The Case of n=1 2.4.2 Comparison of p.d. Kernels 2.5 Spectral Theory of D(F) and Its Extensions 3 The Case of More General Groups 3.1 Locally Compact Abelian Groups 3.2.1 The GNS Construction 3.2.2 Local Representations 3.2.3 The Convex Operation in Ext(F) 4 Examples 4.1 The Case of G=Rn 4.2 The Case of G=R/Z 4.3 Example: ei2x 4.4 Example: e- x in (-a,a), Extensions to T=R/Z 4.4.1 General Consideration 4.5 Example: e- x in (-a,a), Extensions to R 4.6 Example: A Non-extendable p.d. Function in a Neighborhood of Zero in G=R2 4.6.1 A Locally Defined p.d. Functions F on G=R2 with Ext(F) = 5 Type I vs. Type II Extensions 5.1 Polya Extensions 5.2 Main Theorems 5.2.1 Some Applications 5.3 The Deficiency- Indices of D(F) 5.3.1 Polya-Extensions 5.4 The Example 5.3, Green's Function, and an HF-ONB 6 Spectral Theory for Mercer Operators, and Implications for Ext(F) 6.1 Groups, Boundary Representations, and Renormalization 6.2 Shannon Sampling, and Bessel Frames. 6.3 Application: The Case of F2 and Rank-1 Perturbations 6.4 Positive Definite Functions, Green's Functions, and Boundary 6.4.1 Connection to the Energy Form Hilbert Spaces 7 Green's Functions 7.1 The RKHSs for the Two Examples F2 and F3 in Table 5.1 7.1.1 Green's Functions 7.1.3 The Case of F3(x)=e- x , x(-1,1) 7.1.4 Integral Kernels and Positive Definite Functions 7.1.5 The Ornstein-Uhlenbeck Process Revisited 7.1.6 An Overview of the Two Cases: F2 and F3 7.2 Higher Dimensions 8.2 Comparing the Different RKHSs HF and HK 8.1 Applications 8.2 Radially Symmetric Positive Definite Functions 8.3 Connecting F and F When F Is a Positive Definite Functions 8.4 The Imaginary Part o
Sommario/riassunto	This monograph deals with the mathematics of extending given partial data-sets obtained from experiments; Experimentalists frequently gather spectral data when the observed data is limited, e.g., by the precision of instruments; or by other limiting external factors. Here the limited information is a restriction, and the extensions take the form of full positive definite function on some prescribed group. It is therefore both an art and a science to produce solid conclusions from restricted or limited data. While the theory of is important in many areas of pure and applied mathematics, it is difficult for students and for the novice to the field, to find accessible presentations which cover all relevant
	interconnections. We have aimed at filling this gap, and we have stressed hands-on-examples.