1.	Record Nr.	UNINA9910746083403321
	Autore	Noumi Masatoshi
	Titolo	Macdonald Polynomials [[electronic resource]] : Commuting Family of q-Difference Operators and Their Joint Eigenfunctions / / by Masatoshi Noumi
	Pubbl/distr/stampa	Singapore : , : Springer Nature Singapore : , : Imprint : Springer, , 2023
	ISBN	981-9945-87-9
	Edizione	[1st ed. 2023.]
	Descrizione fisica	1 online resource (137 pages)
	Collana	SpringerBriefs in Mathematical Physics, , 2197-1765 ; ; 50
	Disciplina	530.15
	Soggetti	Mathematical physics Special functions Associative rings Associative algebras Mathematical Physics Special Functions Associative Rings and Algebras
	Lingua di pubblicazione	Inglese
	Formato	Materiale a stampa
	Livello bibliografico	Monografia
	Nota di contenuto	Overview of Macdonald polynomials -- Preliminaries on symmetric functions -- Schur functions -- Macdonald polynomials: Definition and examples -- Orthogonality and higher order q-dierence operators -- Self-duality, Pieri formula and Cauchy formulas -- Littlewood–Richardson coefficients and branching coefficients -- Affine Hecke algebra and q-Dunkl operators (overview).
	Sommario/riassunto	This book is a volume of the Springer Briefs in Mathematical Physics and serves as an introductory textbook on the theory of Macdonald polynomials. It is based on a series of online lectures given by the author at the Royal Institute of Technology (KTH), Stockholm, in February and March 2021. Macdonald polynomials are a class of symmetric orthogonal polynomials in many variables. They include important classes of special functions such as Schur functions and Hall–Littlewood polynomials and play important roles in various fields of mathematics and mathematical physics. After an overview of Schur functions, the author introduces Macdonald polynomials (of type A, in

the GLn version) as eigenfunctions of a q-difference operator, called the Macdonald–Ruijsenaars operator, in the ring of symmetric polynomials. Starting from this definition, various remarkable properties of Macdonald polynomials are explained, such as orthogonality, evaluation formulas, and self-duality, with emphasis on the roles of commuting q-difference operators. The author also explains how Macdonald polynomials are formulated in the framework of affine Hecke algebras and q-Dunkl operators.