1. Record Nr. UNINA9910454966803321

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Titolo	Radon transforms and the rigidity of the Grassmannians [[electronic resource] /] / Jacques Gasqui and Hubert Goldschmidt
Pubbl/distr/stampa	Princeton, N.J., : Princeton University Press, 2004
ISBN	1-282-15898-8 9786612158988 1-4008-2617-9
Edizione	[Course Book]
Descrizione fisica	1 online resource (385 p.)
Collana	Annals of mathematics studies ; ; no. 156
Altri autori (Persone)	GoldschmidtHubert <1942->
Disciplina	515/.723
Soggetti	Radon transforms Grassmann manifolds Electronic books.
Lingua di pubblicazione	Inglese
Formato	Materiale a stampa
Livello bibliografico	Monografia
Note generali	Description based upon print version of record.
Nota di bibliografia	Includes bibliographical references (p. [357]-361) and index.
Nota di contenuto	Frontmatter -- TABLE OF CONTENTS -- INTRODUCTION -- Chapter I. Symmetric Spaces and Einstein Manifolds -- Chapter II. Radon Transforms on Symmetric Spaces -- Chapter III. Symmetric Spaces of Rank One -- Chapter IV. The Real Grassmannians -- Chapter V. The Complex Quadric -- Chapter VI. The Rigidity of the Complex Quadric -- Chapter VII. The Rigidity of the Real Grassmannians -- Chapter VIII. The Complex Grassmannians -- Chapter IX. The Rigidity of the Complex Grassmannians -- Chapter X. Products of Symmetric Spaces -- References -- Index
Sommario/riassunto	This book provides the first unified examination of the relationship between Radon transforms on symmetric spaces of compact type and the infinitesimal versions of two fundamental rigidity problems in Riemannian geometry. Its primary focus is the spectral rigidity problem: Can the metric of a given Riemannian symmetric space of compact type be characterized by means of the spectrum of its Laplacian? It also addresses a question rooted in the Blaschke problem: Is a Riemannian metric on a projective space whose geodesics are all closed and of the same length isometric to the canonical metric? The authors comprehensively treat the results concerning Radon transforms and the

infinitesimal versions of these two problems. Their main result implies that most Grassmannians are spectrally rigid to the first order. This is particularly important, for there are still few isospectrality results for positively curved spaces and these are the first such results for symmetric spaces of compact type of rank ›1. The authors exploit the theory of overdetermined partial differential equations and harmonic analysis on symmetric spaces to provide criteria for infinitesimal rigidity that apply to a large class of spaces. A substantial amount of basic material about Riemannian geometry, symmetric spaces, and Radon transforms is included in a clear and elegant presentation that will be useful to researchers and advanced students in differential geometry.