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Mathematics : Topological Groups, Lie Groups

Faraut, J., Kaneyuki, S., Koranyi, A., Lu, Q.-k., Roos, G.

Analysis and Geometry on Complex Homogeneous Domains

A number of important topics in complex analysis and geometry are covered in this excellent introductory text. Written by experts in the subject, each chapter unfolds from the basics to the more complex. The exposition is rapid-paced and efficient, without compromising proofs and examples that enable the reader to grasp the essentials. The most basic type of domain examined is the bounded symmetric domain, originally described and classified by Cartan and Harish-Chandra. Two of the five parts of the text deal with these domains: one introduces the subject through the theory of semisimple Lie algebras (Koranyi), and the other through Jordan algebras and triple systems (Roos). Larger classes of domains and spaces are furnished by the pseudo-Hermitian symmetric spaces and related R-spaces. These classes are covered via a study of their geometry and a presentation and classification of their Lie algebraic theory (Kaneyuki). In the fourth part of the book, the heat kernels of the symmetric spaces belonging to the classical Lie groups are determined (Lu). Explicit computations are made for each case, giving precise results and complementing the more abstract and general methods presented. Also explored are recent developments in the field, in particular, the study of complex semigroups which generalize complex tube domains and function spaces on them (Faraut). This volume will be useful as a graduate text for students of Lie group theory with connections to complex analysis, or as a self-study resource for newcomers to the field. Readers will reach the frontiers of the subject in a considerably shorter time than with existing texts.

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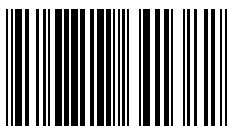
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