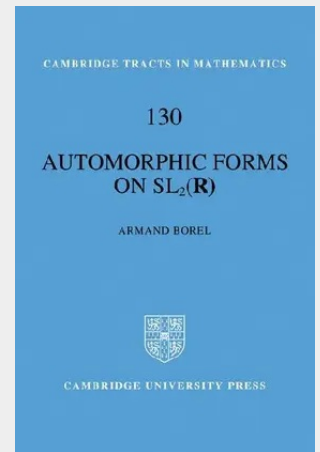


Automorphic Forms on $SL_2(\mathbb{R})$

This book provides an introduction to some aspects of the analytic theory of automorphic forms on $G=SL_2(\mathbb{R})$ or the upper-half plane X , with respect to a discrete subgroup Γ of G of finite covolume. The point of view is inspired by the theory of infinite dimensional unitary representations of G ; this is introduced in the last sections, making this connection explicit. The topics treated include the construction of fundamental domains, the notion of automorphic form on $G\backslash G$ and its relationship with the classical automorphic forms on X , Poincare series, constant terms, cusp forms, finite dimensionality of the space of automorphic forms of a given type, compactness of certain convolution operators, Eisenstein series, unitary representations of G , and the spectral decomposition of $L^2(G\backslash G)$. The main prerequisites are some results in functional analysis (reviewed, with references) and some familiarity with the elementary theory of Lie groups and Lie algebras. Graduate students and researchers in analytic number theory will find much to interest them in this book.

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