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Number Theory
Fourier Analysis
Topological Groups and Lie Groups
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This book studies the modules arising in Fourier expansions of automorphic forms, namely Fourier term modules on SU(2,1), the smallest rank one Lie group with a non-abelian unipotent subgroup. It considers the "abelian" Fourier term modules connected to characters of the maximal unipotent subgroups of SU(2,1), and also the "non- abelian" modules, described via theta functions. A complete description of the submodule structure of all Fourier term modules is given, with a discussion of the consequences for Fourier expansions of automorphic forms, automorphic forms with exponential growth included. These results can be applied to prove a completeness result for Poincaré series in spaces of square integrable automorphic forms. Aimed at researchers and graduate students interested in automorphic forms,

harmonic analysis on Lie groups, and number-theoretic topics related
to Poincaré series, the book will also serve as a basic reference on
spectral expansion with Fourier-Jacobi coefficients. Only a background
in Lie groups and their representations is assumed.