

A Paley-Wiener theorem for real reductive groups

by

JAMES ARTHUR⁽¹⁾

University of Toronto, Canada

Contents

Introduction	1
Chapter I	
1. The group G	8
2. Eisenstein integrals and associated functions	11
3. Relation with induced representations	17
4. Asymptotic expansions	21
5. Estimates	27
6. Further properties of the functions $E_{B' B,s}$	35
7. The space $\mathcal{A}(G_-, \tau)$	38
Chapter II	
1. A function of bounded support	43
2. The residue scheme	45
3. The functions F_φ^\vee	49
4. The theorem of Casselman	52
5. Some definitions	56
6. Application to the residues	62
7. Application to the functions F_φ^\vee	66
Chapter III	
1. A review of the Plancherel formula	70
2. The space $PW(G, \tau)$	72
3. The main theorem	78
4. The Hecke algebra and multipliers	84
References	88

Introduction

Let G be a reductive Lie group with maximal compact subgroup K . The Paley-Wiener problem is to characterize the image of $C_c^\infty(G)$ under Fourier transform. It turns out to be more natural to look at the K finite functions in $C_c^\infty(G)$. This space, which we denote

⁽¹⁾ Partially supported by NSERC Grant A3483.