

# On elliptic tempered characters

by

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## Introduction

Suppose that  $G(F)$  is a real or  $p$ -adic group. That is,  $G$  is a connected reductive algebraic group over a local field  $F$ , which we take to be of characteristic 0. Harmonic analysis on  $G(F)$  is built upon the set  $\Pi_{\text{temp}}(G(F))$  of irreducible tempered representations of  $G(F)$ . These representations include the discrete series for  $G(F)$ , and consist in general of irreducible constituents of representations induced from discrete series. We shall be interested in the subset of elliptic representations in  $\Pi_{\text{temp}}(G(F))$ . The elliptic tempered representations also include the discrete series, and can be regarded as basic building blocks in  $\Pi_{\text{temp}}(G(F))$ . The purpose of this paper is to study some properties of their characters.

We should recall that in general a representation  $\pi \in \Pi_{\text{temp}}(G(F))$  is infinite dimensional, and does not have a character in the classical sense. One of the cornerstones of

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<sup>(1)</sup> Supported in part by NSERC Operating Grant A3483