Characters of Depth-Zero, Supercuspidal Representations of the Rank-2 Symplectic Group

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Abstract. This paper expresses the character of certain depth-zero supercuspidal representations of the rank-2 symplectic group as the Fourier transform of a finite linear combination of regular elliptic orbital integrals—an expression which is ideally suited for the study of the stability of those characters. Building on work of F. Murnaghan, our proof involves Lusztig’s Generalised Springer Correspondence in a fundamental way, and also makes use of some results on elliptic orbital integrals proved elsewhere by the author using Moy-Prasad filtrations of $p$-adic Lie algebras. Two applications of the main result are considered toward the end of the paper.