1014-43-628 **Keith R. Ouellette*** (kouellet@math.ucla.edu). *The Fourier Inversion Formula for the Continuous Spectrum of* $L^2(\Gamma\backslash G)$. Preliminary report.

Understanding the nature of the continuous spectrum of $L^2(G)$ where G is a semisimple Lie Group or a reductive p-adic group is of fundamental importance to unlocking the arithmetic secrets hidden in the discrete spectrum of $L^2(G)$. In 1965, Langlands proved that the continuous spectrum of $L^2(SL_2(\mathbb{Z})\backslash SL_2(\mathbb{R})/SO_2(\mathbb{R}))$ is a one-parameter family of Maass-Eisenstein series and discovered the Plancherel Formula for wave packets on that quotient. Casselman discovered a new proof of the Plancherel Formula for that case. Although it does not prove completeness, it avoids difficult technicalities of Langlands' proof. I illustrate Casselman's proof and highlight my recent work which generalizes the argument for $L^2(G(E)\backslash G(\mathbb{A}_E)^1)$ where E is a number field, $\mathbb{A}_E$ is the ring of adeles over E, and G^1 is the algebraic subgroup of G of elements of determinant one. (Received September 21, 2005)