1035-11-1385 **Paul Garrett*** (garrett@math.umn.edu), School of Mathematics, Univ of Minnesota, 127 Vincent Hall, 206 Church St. SE, Minneapolis, MN 55455. *"Averages and asymptotics of automorphic L-functions over families".*

"Averages and asymptotics of automorphic L-functions over families"

Paul Garrett (With A. Diaconu and D. Goldfeld)

We give a recipe for producing spectral identities for weighted averages of automorphic L-functions in families, and extract asymptotics with error terms.

For example, for GL(2) over number fields, we can break convexity in the t-aspect, via a family of identities originating with Good in the 1980's.

One broad family of identities for L-functions arises from equating two different spectral decompositions of deformations of automorphic distributions, one along a Euler/Gelfand subgroup to obtain an average of periods and L-functions, the other estimated via Sarnak-Bernstein-Reznikoff-Krotz-Stanton on integrals of products of eigenfunctions.

For example, this recipe produces averages of: GL(n-1) twists of cuspforms on GL(n), Rankin-Selberg convolutions for GL(n), doubling-integral Rankin-Selberg L-functions on classical groups, and triple product L-functions. (Received September 19, 2007)