Meeting: 1003, Atlanta, Georgia, AMS CP 1, AMS Session on Contributed Paper Session

1003-11-53 **Chun Che Li*** (ccli@math.ucla.edu), 715 Gayley Ave #"1, Los Angeles, CA 90024. *Trace Formula and Distribution of Hecke eigenvalues.* Preliminary report.

Let F be a totally real number field with degree $r \geq 2$ over $\mathbf{Q}$ with class number 1. Let $\mathbf{A}$ be the adele ring of F. If π is a cuspidal automorphic representation of $GL_2(\mathbf{A})$, for each place v at which π is unramified, let $\lambda_v(\pi)$ denote the trace of the associated Langlands class. Let $k = (k_1, \cdots, k_r) \in \mathbf{Z}^r$ with $k_i \geq 3$. Let N be an ideal in the ring of integers of F. Let $S_k(N)$ be the set of holomorphic Hilbert cusp forms of weight k with level group $\Gamma_0(N)$. Let $E_k(N)$ be a basis of $S_k(N)$ consisting of Hecke eigenforms. For $h \in E_k(N)$, let π_h be the associated cuspidal representation of $GL_2(\mathbf{A})$. Suppose p is a prime. Let $\{N_i\}$ be a sequence of power of prime ideals coprime to p such that $\lim_{i\to\infty} |N_{F\wedge Q}(N_i)| = \infty$. Then the family of sets $S_i = \{\lambda_p(\pi_h) : h \in E_k(N_i)\}$ is equidistributed with respect to the measure

$$d\mu_p(x) = \frac{N_{F\wedge Q}(p) + 1}{\pi} \frac{(1 - x^2/4)^{1/2} dx}{(N_{F\wedge Q}(p)^{1/2} + N_{F\wedge Q}(p)^{-1/2})^2 - x^2}.$$

(Received July 20, 2004)