Department of Mathematical Sciences
The University of Texas at El Paso

Colloquium

Carlos De La Mora

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Friday, October 16, 2015 at 3 pm in Bell Hall 143

L-functions here and there

Let $\mathbb{F}$ be a number field and let $\overline{\mathbb{F}}$ be the algebraic closure of $\mathbb{F}$. Given ρ a representation of Gal($\overline{\mathbb{F}}/F$) we can form its Artin L-function. It is known that Artin's L-functions have a meromorphic continuation to the complex plane and that they have an Euler product. Since Artin's L-functions have an Euler product we can study one prime at the time. Indeed, to each prime ideal we can attach two canonical complex functions, these are the local L-factor and the local epsilon factor. We now change gears and consider G to be a connected reductive group defined over F, $\mathbb{A}$ be the ring of adeles over $\mathbb{F}$ and let π be an automorphic representation of $G(\mathbb{A})$. If V is the set of valuations of $\mathbb{F}$, for $v \in V$ we can complete $\mathbb{F}$, we denote by $\mathbb{F}_v$ the completion of $\mathbb{F}$ with respect to v. It is known that $\pi = \otimes'_{v\in V}\pi_v$ where π_v is a smooth representation of $G(\mathbb{F}_v)$ for all v. One of the conjectures by Langlands is that to every smooth representation π_v of $G(\mathbb{F}_v)$ one should be able to attach two canonical complex functions, these should be a local L-factor and an epsilon factor. Moreover if ρ is a representation of Gal($\overline{\mathbb{F}}/F$) there should exist an automorphic cuspidal representation π of $G(\mathbb{A})$ such that the local L-factor and epsilon factor of ρ and the local L-factor and epsilon factor of π agree for each valuation. The aim of this talk is to explain all the above in more detail.

For further information, please contact Dr. Emil Schwab, eschwab@utep.edu
Refreshments will be served in front of the colloquium room,
15 minutes before the start of the colloquium.