AN INTEGRAL EISENSTEIN COCYCLE AND ARITHMETIC APPLICATIONS.

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ABSTRACT

In a remarkable 1993 paper, R. Sczech defined a group cocycle on $\text{GL}_n(\mathbb{Q})$ valued in a certain $\mathbb{Q}$-vector space. This cocycle is constructed using conditionally convergent sums over lattices in Euclidean space and is called the Eisenstein cocycle. Sczech showed that certain specializations of the Eisenstein cocycle yield special values of the $L$-series of totally real fields. We will describe how one can define an integral structure on the module in which the Eisenstein cocycle is valued, and define a smoothed version of Sczech’s cocycle that takes values in this module. As an application, we will describe how our integral cocycle can be used to construct the $p$-adic $L$-functions of totally real fields. This construction allows for a new study of the properties of $p$-adic $L$-functions, including the behavior of the leading term at $s = 0$. This is joint work with Pierre Charollois.

Wednesday, 14 September 2011
4:00 pm
Smith Hall 204
Tea and refreshments will be served at 3:45pm.

http://math.newark.rutgers.edu/~xiaowwan/Colloquium/