BOSTON UNIVERSITY NUMBER THEORY SEMINAR

Letter from Oberwolfach

Jared Weinstein

(Boston University)

Monday, Apr 25 at 4:15 pm
111 Cummington Street, MCS B21
Tea and cookies in MCS 144 at 4:00 pm

Abstract: Not enough number theorists know about *Geometric Langlands*. It starts with a curve X defined over a finite field, say with function field K. The usual Langlands program is a bijection between automorphic forms on the function field K to representations of the Galois group $\mathrm{Gal}(K^s/K)$. In geometric Langlands, you attempt to geometrize everything; for instance the automorphic forms get replaced by "Hecke eigensheaves on the moduli stack of bundles on X". In 2002, Frenkel, Gaitsgory and Vilonen proved a special case of geometric Langlands (the unramified $\mathrm{GL}(n)$ case).

Recently, Laurent Fargues announced a suite of exciting conjectures, in which K above is replaced with a p-adic field. These conjectures unify many phenomena in the local Langlands program. The curve X gets replaced with a very interesting object, the *Fargues-Fontaine curve*.

(Reporting from an Arbeitsgemeinschaft meeting in Oberwolfach, Germany, 4–8 April 2016.)