Séminaire de théorie des nombres

Le 15 Novembre 2010 à 14h (à Chevaleret)

Cohomology of Bianchi groups and Arithmetic

Exposé de Mehmet Haluk Sengun (Universitat de Barcelona)

Résumé : Bianchi groups are groups of the form $\mathrm{SL}(2, R)$ where R is the ring of an imaginary quadratic field. They arise naturally in the study of hyperbolic 3-manifolds and of certain generalizations of the classical modular forms (called Bianchi modular forms) for which they assume the role of the classical modular group $\mathrm{SL}(2, \mathbb{Z})$.

In this talk, I will put the cohomology of Bianchi groups in the center and will discuss its connections with abelian varieties of GL_2 type and Galois representations. I will continue with a discussion of the size of the cohomology and the amount of the torsion, which will bring me to the latest work of N.Bergeron and A.Venkatesh on the torsion homology of arithmetic groups. I will expose some of my theoretical/computational investigations along the way.