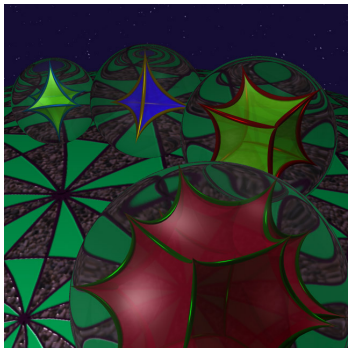
Oberseminar Geometrie
Department of Mathematics
University of Fribourg
Seminar room, Math II (Lonza)
Wednesday November 29, 2017, 10:20-12:00



PLINIO G. P. MURILLO (University of Bern)

Hyperbolic manifolds with large systole

The systole $sys_1(M)$ of a compact Riemannian manifold M is the length of a shortest non-contractible closed geodesic in M. In this talk we will prove that for any arithmetic hyperbolic n-manifold M of the first type, the systole of any sequence of principal congruence coverings M_I satisfies the bound

$$sys_1(M_I) \geq \frac{8}{n(n+1)} \log(vol(M_I)) - c,$$

where c is a constant independent of I. We will also discuss the sharpness of the multiplicative constant $\frac{8}{n(n+1)}$ in the inequality above. This result generalizes previous work by Buser, Sarnak and Katz, Schaps and Vishne in dimensions 2 and 3.