BOSTON UNIVERSITY GEOMETRY AND PHYSICS SEMINAR

GEOMETRY AND TOPOLOGY OF RANDOM 2-COMPLEXES

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Oct 16, 2013, 4:00 – 5:00pm
Math/Computer Science, Room 148
111 Cummington Street, Boston

Tea: 3:45pm in Room MCS 144

Abstract: In the talk I will discuss geometric and topological properties of random 2-complexes. One of the central questions is whether one can generate randomly aspherical 2-complexes (i.e. such that $\pi_2(Y) = 0$) and whether random aspherical 2-complexes satisfy the Whitehead Conjecture. This conjecture was proposed in 1941 by J.H.C. Whitehead; it states that any subcomplex of an aspherical 2-complex is also aspherical.

A result presented in the talk states that (under certain assumptions) any aspherical subcomplex $Y \subset Y'$ of a random 2-complex Y satisfies the Whitehead conjecture, with probability tending to 1. The other results describe torsion in the fundamental groups of random 2-complexes.

The proofs use Cheeger constants and systoles of simplicial surfaces as well as properties of Gromov hyperbolic groups. The talk is based on a joint work with Armindo Costa.

See `http://math.bu.edu/research/geom/seminar.html` or contact Si Li
sili@math.bu.edu for more information.