

STRAIGHTENING STRUCTURES ON SURFACES

Speaker: Robert Tang
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Time: Fri, Oct. 17th, 16:00 - 17:00

Venue: Room 106, SCMS

Abstract:

Triangulations are ubiquitous throughout low-dimensional topology and geometry. It is a well-known result that any two triangulations of a topological surface are related by a finite sequence of flips. The analogous result is also known to be true for geometric triangulations for surfaces equipped with certain geometric structures, for example, Euclidean cone metrics or hyperbolic surfaces with a fixed vertex set. However, the prevailing methods for studying triangulations and flip sequences, in the geometric setting, tend to be very specific to the type of geometry involved.

In this talk, I will introduce straightening structures on surfaces. This provides an axiomatic framework which models the behaviour of geodesic paths on non-positively curved surfaces. Moreover, it permits a notion of 'straight triangulation', generalising the geometric triangulations from the Euclidean or hyperbolic settings. Our main result is that the 'straight flip graph' associated to a straightening structure is non-empty, connected, and quasi-isometrically embedded in the flip graph of the underlying topological surface. I will also describe other classes of geometric structures that give rise to straightening structures.

This is joint work with Valentina Disarlo.