

EQUATORS OF THE 2-SPHERE AND AREA-PRESERVING HOMEOMORPHISMS

Speaker: Richard Webb
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Time: Mon, Nov. 3rd, 16:40 - 17:40

Venue: Room 102, SCMS

Abstract:

The curve complex is an important tool in the study of mapping class groups of surfaces, and other areas of low-dimensional topology such as Teichmüller space and hyperbolic 3-manifolds. In this talk, we introduce analogues of the curve complex in order to study the group of area-preserving homeomorphisms (or Hamiltonian diffeomorphisms) of the 2-sphere. How this relates to the dynamics of area-preserving homeomorphisms, and symplectic geometry, is particularly curious, especially because the original curve complex tells us lots of information about the dynamics of mapping classes of surfaces. Using our tools, we are able to construct new quasimorphisms on the group(s) above. I will discuss an application of this regarding the geometry of simple closed curves that separate the sphere into two components of equal area (i.e. equators of the sphere), and how this relates to the Equator Conjecture. Joint work with Yongsheng Jia.