THE EARTHQUAKE METRIC

Fudan Topology Seminar

Speaker: Yi Huang

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Time: Tue, Mar. 28th, 15:00-17:00

Venue: Room 346, SCMS

Abstract: Earthquakes are natural generalisations of Fenchel-Nielsen twists deformations on Teichmueller space, and Thurston's remarkable earthquake theorem asserts that any hyperbolic metric on a given closed surface can be deformed to any other by a unique (left) earthquake. This was famously employed by Kerckhoff in his proof of the Nielsen realisation problem, which quickly cemented their importance in Teichmüller theory. Geometrically speaking, however, (long) Earthquake paths are far from being "twist efficient" - indeed, Mirzakhani shows that earthquake flows on Teichmüller space are measure conjugate to the horocyclic flow. Motivated by wishing to understand how one might efficiently "earthquake" between hyperbolic structures, we initiate the first systematic study of the earthquake metric — a Finsler metric first introduced in Thurston's "Minimal stretch maps between hyperbolic surfaces" preprint, and discover surprising connections to both the Thurston metric and the Weil-Petersson metric. This is work in collaboration with K. Ohshika, H. Pan and A. Papadopoulos.