Mathematics, Statistics, and Computer Science **@ UIC**

Departmental Colloquium

Simple Length Rigidity

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Abstract: It is a classical result that the geometry of a closed hyperbolic surface is completely determined by the lengths of finitely many simple closed geodesics on the surface. One may reformulate this in algebraic language, as saying that a discrete, faithful representation of the fundamental group G of a closed surface S is determined, up to conjugacy, by the spectral radii of the images of finitely many elements which are represented by simple closed curves on S.

Hitchin discovered a component of the space of representations of G into PSL(n,R), which bears many resemblances to the Teichmuller space of all representations of G into PSL(2,R). We show that Hitchin representations are similarly determined by the spectral radii of the images of elements represented by simple closed curves. We obtain a similar result for discrete faithful representations of G into PSL(2,C). (These results are joint work with Martin Bridgeman and Francois Labourie.)

Friday, October 21 at 3:00 PM in LC F6