

**Jeremy Kahn**

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will speak on

**The Good Pants Homology and the  
Ehrenpreis Conjecture**

ABSTRACT: The Ehrenpreis conjecture states that given any two closed Riemann surfaces  $S$  and  $T$  of genus greater than 1, and any  $K > 1$ , there are finite covers  $\hat{S}$  and  $\hat{T}$  of the two surfaces, and a  $K$ -quasiconformal map between them. In joint work with Vladimir Markovic, we prove the Ehrenpreis conjecture by showing that any closed hyperbolic surface  $S$  has a cover  $\hat{S}$  that is made of “good pants” that have been assembled in a good way, and then show that any two “good pantened surfaces” have common covers that are close in the Teichmüller metric.

We find these good pantened covers by showing that the set of good pants (which have boundary lengths close to a given large  $R$ ) is evenly distributed around every good geodesic. We can assemble a formal sum of good pants to form a good pantened surface provided that the formal sum is *balanced*—that there are an equal number of pants on the two sides of every good geodesic. We define the “good pants homology” to analyze the obstruction to correcting an imbalance, and we show that the good pants homology is equal to the standard homology, which implies that the obstruction is trivial.

MONDAY, 5 DECEMBER 2011

LECTURE AT 4:00 PM

COFFEE, TEA, AND REFRESHMENTS FROM 3:30-5:00 PM

ROOM 617, WACHMAN BUILDING

DEPARTMENT OF MATHEMATICS