IU^B International University Bremen

Mathematics Colloquium at IUB

Adam Epstein

(University of Warwick)

will speak on

Teichmüller Theory of Riemann Surfaces and Solenoids

Date: **Monday, September 26, 2005**
Time: **17:15**
Place: **Lecture Hall Research II, IUB**

Abstract:

The classification of Riemann surfaces entails a discussion of moduli. It is classical that compact Riemann surfacs of genus 1 are parametrized by the upper half-plane. For compact Rieman surfaces of genus $g > 1$, the corresponding parameter space — the Teichmüller space — is a complex manifold of dimension $3g - 3$. Moreover, any two surfaces in a given Teichmüller space are related in a rather particular deformation which is the unique solution of a natural extremal problem. The situation for open Riemann surfaces is far more complicated, given that Teichmüller spaces are generally infinite dimensional. For the linearized extremal problem, these complications are matters of basic functional analysis such as the Hahn-Banach Theorem.

Riemann (surface) solenoids are laminated objects with leafwise complex structure and totally disconnected transversals. They arise in dynamical connections as limits of inverse systems of compact Riemann surfaces, and their deformation theory forms part of Sullivan's approach to the proof of Renormalization Convergence. Work in progress — joint with V. Markovic and D. Saric — seeks to understand the existence, and sometimes nonexistence, of solutions to Teichmüller's classical extremal problem for a particular class of solenoids.

Colloquium Tea at ca. 16:45 in the Tea Room of Research II, close to the lecture hall. Everybody is welcome!

M. Stoll