

Seminar in Nonlinear Systems

David Radnell

Department of Mathematics
Rutgers University

Geometry and Analysis in Conformal Field Theory

Thursday, December 5, 2002

3:30 pm

Pierce 218

Abstract: This will be an introductory talk on conformal field theory and some of the difficulties that arise in its mathematical construction. Conformal field theory first arose in physics in 2D statistical mechanics and string theory. In 1987 Segal gave a mathematical definition of conformal field theory based on the assumed properties of the path integral in physics. The basic objects are Riemann surfaces with parametrized boundaries and their moduli space. While this definition is conceptually satisfying it is extremely hard to construct examples. Some deep problems in complex analysis and geometry arise. I will outline how some of these problems can be solved using Teichmüller theory, quasiconformal maps and Schiffer variation.

Refreshments at 3:15pm