Temple University Mathematics Colloquium

Pierre Albin

Courant Institute of Mathematical Sciences

will speak on

Ricci flow and the determinant of the Laplacian on non-compact surfaces

ABSTRACT: The determinant of the Laplacian is an important invariant of closed surfaces and has connections to the dynamics of geodesics, Ricci flow, and physics. Its definition is somewhat intricate as the Laplacian has infinitely many eigenvalues. I'll explain how to extend the determinant of the Laplacian to non-compact surfaces where one has to deal with additional difficulties like continuous spectrum and divergence of the trace of the heat kernel. On surfaces (even non-compact) this determinant has a simple variation when the metric varies conformally. I'll explain how to use Ricci flow to see that the largest value of the determinant occurs at constant curvature metrics. This is joint work with Clara Aldana and Frederic Rochon.

Wednesday, 3 February 2010
Lecture at 4:00 pm
Coffee, tea, and refreshments from 3:30-5 pm
Room 617, Wachman Building
Department of Mathematics