



istanbul matematiksel bilimler merkezi
istanbul center for mathematical sciences

THE POINCARÉ CONJECTURE AND THE NATURE OF 3-MANIFOLDS

John Morgan

Simons Center for Geometry and Physics
Stony Brook University, USA

Formulated in 1904, the Poincaré Conjecture stood for almost 100 years as the most significant problem in topology. In 2002, Perelman resolved this conjecture in the affirmative and went on to give a complete description of all 3-manifolds. His method was to use Hamilton's evolution equation for a Riemannian metric on the manifold, the so-called Ricci flow equation, and his description of any 3-manifold is in terms of its geometric pieces, exactly as conjectured 30 years ago by Thurston. In this talk we will indicate what Thurston's conjecture says, how it is related to the Poincaré Conjecture and outline some of the main ideas that go into Perelman's proof.

Date: Monday, December 13, 2010

Time: 14:00

Place: IMBM Seminar Room

We thank the Mathematics Department of METU and the Cahit Arf Lectures committee for their continuous collaboration.