Department of Mathematics
University of Notre Dame

TOPOLOGY SEMINAR

Guest Speaker: Jesse Wolfson
University of Chicago

Date: Thursday, December 8, 2016
Time: 11:15 AM
Location: 258 Hurley Hall

Lecture Title:
Coincidences of homological densities, predicted by arithmetic

Abstract
Basic questions in analytic number theory concern the density of one set in another (e.g. square-free integers in all integers). Motivated by Weil's number field/function field dictionary, we introduce a topological analogue measuring the "homological density" of one space in another. In arithmetic, Euler products can be used to show that many seemingly different densities coincide in the limit. By combining methods from manifold topology and algebraic combinatorics, we discover analogous coincidences for limiting homological densities arising from spaces of 0-cycles (e.g. configuration spaces of points) on smooth manifolds and complex varieties. We do not yet understand why these topological coincidences occur. This is joint work with Benson Farb and Melanie Wood.

Jesse Wolfson - University of Chicago