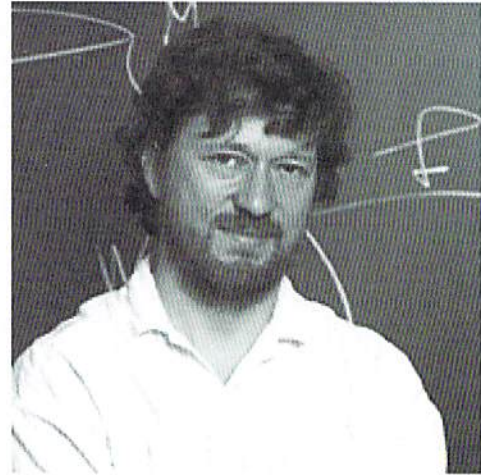# TOPOLOGY AND GEOMETRY SURVEY SERIES

Guest Speaker: Stephan Stolz

University of Notre Dame

Date: Tuesday, September 4, 2018

Time: 11:45 AM

Location: 125 Hayes-Healy Hall

Stephan Stolz - University of Notre Dame

Lecture Title:

Topology and Geometry Survey Series

Abstract

The topic of this lecture is the cohomological version of the Index Theorem which describes the index of the Dirac operators on a spin manifold X in terms of a characteristic number of X. More precisely, the index is given by evaluating the $\widehat{A}$-genus of the tangent bundle TX (a polynomial in the Chern classes of the complexification $TX_{\mathbb{C}}$) on the fundamental class of X. More generally, the index of the Dirac operator twisted by a vector bundle V is given by the characteristic number obtained by evaluating the $\widehat{A}(TX)$ times the Chern character of V (another polynomial in the Chern classes of V) on the fundamental class. No prior knowledge of characteristic classes is needed for this talk.