

## ***TOPOLOGY SEMINAR***

**Guest Speaker: Stephan Stolz**  
**University of Notre Dame**

**Date:** Tuesday, March 5, 2019

**Time:** 2:30 PM

**Location:** 258 Hurley Hall



***Lecture Title:***

**Invertible topological field theories are SKK manifold invariants**

***Abstract***

Topological field theories in the sense of Atiyah-Segal are symmetric monoidal functors from a bordism category to the category of complex (super) vector spaces. A field theory  $E$  of dimension  $d$  associates vector spaces to closed  $(d-1)$ -manifolds and linear maps to manifolds of dimension  $d$ . It turns out that if  $E$  is invertible, i.e., if the vector spaces associated to  $(d-1)$ -manifolds have dimension one, then the complex number  $E(M)$  that  $E$  associates to a closed  $d$ -manifold  $M$ , is an SKK manifold invariant. Here these letters stand for schneiden=cut, kleben=glue and kontrolliert=controlled, meaning that  $E(M)$  does not change when modifying the manifold by cutting and gluing along hypersurfaces in a controlled way. The main result of this joint work with Matthias Kreck and Peter Teichner is that the map described above gives a bijection between topological field theories and SKK manifold invariants.