University of Notre Dame Department of Mathematics

TOPOLOGY SEMINAR

Bruce Williams

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Will give a lecture entitled:

Family Hirzebruch Signature Theorem with Converse

On

Thursday, February 24, 2011

At

12:45 PM

In

258 Hurley Hall

Abstract

Let X be a space which satisfied $4k$-dimensional Poincaré Duality, and let $\sigma(X)$ be the signature of X. If X is a manifold, then $\sigma(X)$ can be "disassembled," i.e. $\sigma(X)$ is determined by a local invariant, the Hirzebruch L-polynomial. Ranicki has given an enriched version of $\sigma(X)$ which is defined in all dimensions. If $dim(X) > 4$, Ranicki's enriched version can be disassembled if and only if X admits topological manifold structure. There is a further enrichment which yields an analogous result for families of spaces, i.e. fibrations.

This is joint work with Michael Weiss.