

Topics in Geometry Seminar

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Vector Bundles (Clutching Constructions)

Date: April 3, 2017

Time: 11:30 - 1:00 PM

Room: Math & Stat Lounge 307.20

Abstract:

In this talk I will begin with some constructions on vector bundles such as the tensor product, conjugate, and exterior power. Next I will explain the clutching construction, which is a way of constructing vector bundles over spheres. Many examples will be provided including the tangent bundle over S^2 , and the canonical complex line bundle over $\mathbb{C}P^1 = S^2$. As an application of the clutching construction, we will show that every complex vector bundle over S^1 is trivial. We will also see that every real vector bundle over S^1 is either trivial or isomorphic to the Möbius bundle.