

TOPOLOGY SEMINAR

Guest Speaker: Hood Chatham
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Date: Tuesday, December 3, 2019

Time: 2:30 PM

Location: 258 Hurley Hall

Lecture Title:

An Orientation Map for Higher Real E-theory

Abstract

The real K-theory spectrum KO is “almost complex oriented”. Here are a collection of properties that demonstrate this: (1) KO is the C_2 fixed points of a complex oriented cohomology theory KU . (2) Complex oriented cohomology theories have trivial Hurewicz image, whereas KO has a small Hurewicz image -- it detects η and η^2 . (3) Complex oriented cohomology theories receive a ring map from MU . KO receives no ring map from MU but it receives one from MSU (4) If E is a complex orientable cohomology theory, every complex vector bundle V is E -orientable. Not every complex vector bundle V is KO -orientable, but $V + V$ and V^2 are. Higher real E theory EO is an odd primary analogue of KO . At $p=3$, EO is closely related to TMF . EO is defined as the C_p fixed points of a complex oriented cohomology theory, and it has a small but nontrivial Hurewicz image, so it satisfies analogues of properties (1) and (2). I prove that it also satisfies analogues of properties (3) and (4). In particular, I produce a unital orientation map from a Thom spectrum to EO and prove that for any complex vector bundle V the bundles pV and V^p are complex oriented.