Keeping exotic spheres as pets

Paul Pantea

Week 2 - Term 1

WARWICK MATHEMATICS

POSTGRADUATE SEMINAR

Abstract

The discovery of manifolds homeomorphic but not diffeomorphic to the standard sphere in the fifties sent shockwaves through the world and some mathematicians never fully recovered.

These exotic spheres are cute, but they are best admired in their natural habitat.
We will venture out in the wild and introduce ideas like topological K-theory, Bott periodicity, the J-homomorphism, and the Adams spectral sequence. Then, we will explore how stable homotopy theory helps us understand exotic spheres and their connection with the Poincaré conjecture, the Riemann zeta function, and the meaning of life.

Time

12 pm, 12^{th}
October 2022

Location

Room B3.02

Organisers

Alvaro Gonzalez Hernandez
Katerina Santicola