

**Talk Title:** From K-theory to calculus

**Abstract:** Topological K-theory is an extension of algebraic K-theory to the world of geometry. Building from vector spaces (say over the real or complex numbers), Atiyah constructed an invariant of topological spaces, which behaves similarly to how algebraic K-theory acts as an invariant of rings. Depending on whether we start with real or complex vector spaces, we get different invariants, which are intricately related.

Also starting with real or complex vector spaces as the foundations, one can describe a categorification of Taylor's Theorem from differential calculus. The calculus has much in common with the classical Taylor's Theorem; it provides a filtration of a topological space by "polynomial" parts.

In this talk, I will aim to provide some intuition behind these two seemingly different constructions and discuss how an analogy between the two offers deep insight into the latter.