

Talk Title: The Disc-structure space

Abstract: The classical approach to studying the category of manifolds and diffeomorphisms is to compare it to the category of spaces and homotopy equivalences, by assigning a manifold its underlying space. The information lost in this comparison is encoded in certain “structure spaces” that are expressible—in a certain range—in terms of well-studied infinite loop spaces. More recent developments related to manifold calculus and factorisation homology suggest a different approach, which in addition to the underlying homotopy type of a manifold also takes the homotopy types of all its configuration spaces into account. Again, understanding how much information is lost amounts to studying certain structure spaces: the “Disc-structure spaces”.

In this talk, I will explain the above and talk about joint work with A. Kupers in which we show that these Disc-structure spaces are nontrivial infinite loop spaces that depend only little on the underlying manifolds—without dependence on a range.