

COLLOQUIUM

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Configuration Spaces



Mathematics
and
Statistics

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Time: 3:30 - 4:30 PM

Room: RIC 209

Abstract: If M is a manifold (or even a topological space), the configuration space $F(M, k)$ is the space of k points in M . For example, the space $F(\mathbb{R}^3, k)$ represents the space of possible configurations of k objects in space. First we will recall some of the basic things from homotopy theory such as cohomology, and then consider the special case of $F(\mathbb{R}^2, k)$ and describe its cohomology and homotopy groups, and its connection with the braid group P_k . We then move on to discuss the following two actively researched problems:

1. When is $F(M, k)$ invariant under homotopy?
2. Find an algebraic model for $F(M, k)$.

The present research is joint work with Pascal Lambrechts.