



THE HONG KONG UNIVERSITY OF SCIENCE & TECHNOLOGY

Department of Mathematics

MATHEMATICS COLLOQUIUM

Noncommutative string topology

By

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Abstract

String topology was originally developed by Chas and Sullivan as a generalization of the Goldman bracket on free loops of a surface to higher-dimensional manifolds. The most fundamental result in Chas-Sullivan's work is the construction of a BV algebra structure on the homology of the free loop space of a closed, oriented manifold. The fundamental relevant notion turns out to be that of a Calabi-Yau structure (a kind of non-commutative orientation) and traces in higher categories, which give a categorical, non-commutative analogue of free loop spaces. This point of view allows ideas of string topology to be applied not only in homotopy theory, but also in algebraic geometry, symplectic topology, and representation theory. I shall describe joint work on developments in this 'noncommutative string topology' with T. Dyckerhoff and N. Rozenblyum.

Date : 25 April 2025 (Friday)

Time : 3:00p.m.-4:00p.m.

Venue : Lecture Theatre F (Lift 25/26)

All are Welcome!