

國立清華大學數學系學術演講

NTHU MATH Colloquium

講題 Entanglements: classification, symmetry and application

講者 王以晟博士 (中央研究院)

時間 2021.12.06 (Mon.) 16:00 – 17:00

地點 第三綜合大樓**2樓 Room 201** (請同學配戴口罩)

茶會 15:30, Room 707

Abstract

In this talk, we take a quick tour through some recent research on the problems of spatial entanglement classification and symmetry, and discuss, along the way, some real-life application of the theory of spatial entanglements.

Handlebody-links are embedded three dimensional bodies in three-space; they generalize the classical theory of knots and links, and are closely linked to spatial graph theory. Handlebody-link classification is often done by tabulating them from the simplest one to more complicated ones. While knot tabulation has a long history of well over a hundred year, tabulating handlebody-links begins just this century; recent progress in this research area is the main topic of the first part of the talk.

Thinking of handlebody-links as objects of a category, we can take our classification to the next level, and ask for a classification of morphisms between them, that is, homeomorphisms preserving handlebody-links. This leads us to the notion of symmetry groups, the main theme of the second part.

The third part concerns applications of spatial entanglement in other fields, notably in 2D time series analysis.