

# 國立中山大學應用數學系

## 學術演講

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國家理論科學研究中心(NCTS)

講題：Applied topology: persistent homology and its applications

時間：2019/05/24 (Friday) 14:10 ~ 16:00

地點：理學院四樓理 SC 4009-1 室

茶會：16:00 於理 SC 4010 室 (系辦公室)

### Abstract

Persistent homology is an emerging tool in data analysis; it is used to measure topological features of a data set. Persistent homology provides invariants resilient to noise and is capable of analyzing structures that traditional methods might not be able to deal with well. Its rapid development has gained considerable attention over the past decade, and its applications in engineering and science can now be found in many research areas, such as computer vision, machine learning, material science, and neuroscience.

In the first part of the talk, I will give a quick review on simplicial homology theory, emphasizing on the geometric intuition. The theory of persistent homology, along with some examples, will be discussed in the second part. In the final part of the talk, I will present a recent work by C. Giusti et al. on applications of persistent homology in neuroscience.

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