



# 清华大学高等研究院

Institute for Advanced Study, Tsinghua University

## 学术报告

**Title:** A unified mathematical theory of gapped/gapless edges of 2d topological orders

**Speaker:** 孔良 (清华大学丘成桐数学科学中心)

**Time:** 2:00pm, Thursday, August 30, 2018

**Venue:** Conference Hall 322, Science Building, Tsinghua University

### Abstract

2d topological orders were discovered in fractional quantum Hall systems in 1982. 30 years of research has revealed in this field a wonderland of new physics and new mathematics. It was known from the early years that such 2d topological orders are determined and can be measured by its topologically protected gapless edges, whose mathematical description was only partially known (via chiral conformal field theories). In the last ten years, it was realized that some 2d topological orders can also have gapped edges, whose mathematical theory was well established. But the mathematical theory of gapless edges is still missing. It was generally believed that gapped edges and gapless edges are very different in nature. In this talk, however, I will show that there is a surprisingly beautiful and completely new mathematical theory that can unify both gapped and gapless edges. I hope that, at the end of my talk, you can not help wondering how our Mother Nature could reveal such beautiful mathematical structures?