



MATH-IMS Joint Colloquium Series The Chinese University of Hong Kong

This MATH-IMS Joint Colloquium Series in pure mathematics is organized by the Department of Mathematics and the Institute of Mathematical Sciences (IMS) at the Chinese University of Hong Kong. The series focus on all areas of pure mathematics together with theoretical developments and applications.

Date: March 25, 2021 (Thursday)

Time: **11am – noon** (Hong Kong Time)

Zoom Link: <https://cuhk.zoom.us/j/98846779826>

Topological cyclic homology for p-adic local fields

Speaker: Professor Ruochuan Liu

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Abstract: Topological cyclic homology, which was introduced by Bokstedt-Hsiang-Madsen in early 90s, is an important tool to compute algebraic K-groups via the cyclotomic trace map. It is also closely related to p-adic cohomology theories as revealed by the recent work of Bhatt-Morrow-Scholze. In this talk, we will give a brief introduction to topological cyclic homology and present a new approach to computing it in the case of p-adic local fields. Joint work with Guozhen Wang.

Bio: Professor Ruochuan Liu obtained his BSc and Master degree in mathematics from Peking University, and his Ph.D. at MIT in 2008. Since 2012, he has moved back to BICMR, where he is currently a full professor. Prof. Liu's research interests are arithmetic geometry and algebraic number theory. He has made a series of breakthroughs in p-adic Hodge theory, automorphic forms and Langlands program. Prof. Liu was a member of the Institute for Advanced Study in 2010. For his fundamental contributions in arithmetic geometry and the p-adic Riemann-Hilbert correspondence, Prof. Liu received the National Science Fund for Distinguished Young Scholars in 2017, the Tencent Xplorer prize in 2019, and the China Youth Science and Technology Award in 2020.