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

This 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 focuses on all areas of pure mathematics together with theoretical developments and applications.

Date: March 31, 2023 (Friday)
Time: 9:30AM-10:30AM (Hong Kong Time)
Zoom Link: https://cuhk.zoom.us/j/98846779826

Higher geometric quantization and L-functions

Speaker: Professor David Ben-Zvi
University of Texas at Austin

Abstract: I'll describe a perspective on the theory of L-functions inspired by geometric quantization, developed in joint work with Yiannis Sakellaridis and Akshay Venkatesh. To a suitable class of hamiltonian actions of reductive groups one attaches two ``higher" quantization problems [in the sense of higher-dimensional QFT], one dubbed magnetic or automorphic and the other electric or spectral. Electric-magnetic / Langlands duality exchanges these quantization problems for dual reductive groups. I'll explain how, when considered in arithmetic contexts, the notion of automorphic quantization captures the theory of periods of automorphic forms, while spectral quantization captures the theory of L-functions of Galois representations.

Bio: Professor David Ben-Zvi is a Professor at the University of Texas at Austin. He obtained his B.A. from Princeton University in 1994 and his Ph.D. from Harvard University in 1999. Professor Ben-Zvi's research concerns interactions between representation theory, algebraic geometry and mathematical physics, and more particularly mathematics arising from gauge theory. In 2012, he was elected as a Fellow of the American Mathematical Society.