HONG KONG GEOMETRY COLLOQUIUM

Jointly organized by
The Institute of Mathematical Sciences, CUHK
Department of Mathematics, CUHK
Institute of Mathematical Research, HKU
Department of Mathematics, HKUST

I. **Beilinson-Parshin adeles via solid algebraic geometry**   9:30am–10:30am
by Christopher Brav
from Shanghai Institute for Mathematics and Interdisciplinary Sciences

We give an introduction to solid algebraic geometry, in the sense of Clausen–Scholze, a refinement of classical algebraic geometry built on spectra of solid rings, a certain category of "topological" rings including classical adic-like topological algebras. We show that the additional locality afforded by working with a larger collection of test spectra leads to a new construction of adelic decompositions of quasi-coherent sheaves, in the form of Beilinson-Parshin, as well as a very general adelic descent result. This is joint work Grigory Konovalov.

II. **Geometric Langlands correspondence**   11:00am–12:00pm
by Nick Rozenblyum
from The University of Toronto

The geometric Langlands conjecture is an analogue of the Langlands correspondence in number theory, in which number fields are replaced by Riemann surfaces and the Galois group is replaced by the fundamental group. I will explain the analogy and some motivation behind this conjecture and give some indication of the proof. This is based on joint work with Arinkin, Beraldo, Campbell, Chen, Faergeman, Gaitsgory, Lin, and Raskin.

The Hong Kong University of Science and Technology
Academic Building, Room 2303 (Lift 17/18)
Saturday, April 26, 2025