

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: October 28, 2022 (Friday)

Time: 9:30AM-10:30AM (Hong Kong Time)

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

Rigid local systems

*Speaker: Professor Michael Groechenig
University of Toronto*

Abstract: An irreducible representation of a group G is said to be rigid, if it cannot be continuously deformed to a non-isomorphic representation. If G happens to be the fundamental group of a complex projective manifold, rigid representations are expected to have fundamentally different properties. In this talk I will introduce the basic notions related to rigidity and subsequently turn to two conjectures by Simpson (motivicity and integrality). I will then report on joint work with Esnault which proves the integrality conjecture for cohomologically rigid local systems and comment on recent developments with regard to motivicity.

Bio: Prof. Michael Groechenig is an assistant professor at the University of Toronto. His main interests lie at the crossroads of algebraic geometry, number theory, mathematical physics and bouldering. After obtaining his PhD from the University of Oxford in 2013, he was a Chapman fellow at Imperial College London and subsequently a Marie Skłodowska-Curie fellow at Freie Universität Berlin. In 2018, Michael joined the University of Toronto and was awarded an Alfred P. Sloan fellowship in 2022. He has made important contributions to the study of local systems and the Hitchin fibration using methods in p -adic geometry. He currently climbs at the somewhat mediocre V5 level, but hopes that repeated visits to the Glen, Southern Ontario's top bouldering destination, will allow him to recover his old form.