THE HONG KONG UNIVERSITY OF SCIENCE & TECHNOLOGY

Department of Mathematics

ALGEBRA AND GEOMETRY SEMINAR

Motives in Geometric Representation Theory

by

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Abstract

Recent constructions in motivic homotopy theory offer exciting new applications in geometric representation theory. For example, they allow to consider mixed perverse sheaves (a graded version of perverse sheaves) with integral coefficients or K-motives (a K-theoretic analogue of constructible sheaves).

In this lecture series, we will explain how to work with motives in practice. We focus on motivic cohomology, the motivic six functor formalism, Tate motives, and weight structures. We will then explain the notion of stratified mixed Tate motives which, when specialized to (affine/partial) flag varieties, yields a geometric perspective on Koszul duality. Lastly, we will introduce results and conjectures relating K-motives and the geometric Langlands program.

Date	Time	Venue
11 Aug 2023 (Fri)	**2:00-3:00pm**	**CYTG003 (CYT Lifts 35/36)**
14 Aug 2023 (Mon)		**Room 2503 (Lifts 25/26)**
15 Aug 2023 (Tue)		**Room 5510 (Lifts 25/26)**
17 Aug 2023 (Thu)		**Room 5510 (Lifts 25/26)**
18 Aug 2023 (Fri)		**Room 5510 (Lifts 25/26)**

All are Welcome!