



THE HONG KONG UNIVERSITY OF SCIENCE & TECHNOLOGY

Department of Mathematics

## **ALGEBRA AND GEOMETRY SEMINAR**

### **Semi-orthogonal decomposition of conjugation equivariant sheaves on the loop group**

by

**Dr. Aron Heleodoro**

The University of Hong Kong

#### **Abstract**

Let  $k$  be an algebraically closed field and  $L = k((t))$ , for  $G$  a connected reductive algebraic group consider  $\breve{G} := G(L)$ . We establish a semi-orthogonal decomposition indexed by Newton strata of  $D(\frac{\breve{G}}{\breve{G}})$ , the DG category of  $\breve{G}$ -equivariant constructible étale sheaves on  $\breve{G}$ . In this talk I will explain (1) how to consider (ind-)constructible étale sheaves on such infinite-dimensional spaces, (2) what notion of semi-orthogonal decomposition we consider, (3) the definition of Newton strata and the geometric input about them we need for the theory, and (4) how this category relates to the affine Hecke category. This is joint work with Xuhua He.

**Date : 30 October 2023 (Monday)**

**Time : 3:00pm – 4:30pm**

**Venue : Room 5560 (Lifts 27/28)**

*All are Welcome!*