

# ***ALGEBRAIC GEOMETRY AND COMMUTATIVE ALGEBRA SEMINAR***

**Speaker: Tamanna Chatterjee**

**University of Notre Dame**

**Date:** Thursday, November 16, 2023

**Time:** 2:30 PM

**Location:** 127 Hayes-Healy Bldg

**Zoom URL:** NA



**UNIVERSITY OF  
NOTRE DAME**  
College of Science  
Mathematics

***Lecture Title:***

**Parabolic induction and parity sheaves for classical groups**

***Abstract***

Parity sheaves are some constructible complexes defined on some stratified space where the strata satisfies some parity vanishing conditions. They are introduced by Carl Mautner, Daniel Juteau and Geordie Williamson in 2014. In characteristic 0 they coincide with the intersection cohomology complexes but in positive characteristic they are new and important objects. On flag variety they can be used as the "p-canonical basis" for Hecke algebras. It was noticed that on finite flag variety as well as affine grassmannian the parity sheaves correspond to the tilting sheaves. One expectation was to find similar relation on nilpotent cone, which Achar and Mautner started exploring in 2012. Another expectation was to understand the modular Springer correspondence in terms of parity sheaves. To study that one important conjecture has to be solved was made by Mautner. It says the parabolic induction functor defined on the nilpotent cones must preserves parity complexes. We break down this conjecture in two pieces and first try to prove that the parabolic induction functor sends parity sheaves associated to a cuspidal pair to a parity complex for classical groups. This is a ongoing project with Pramod N. Achar.