

## ***A COUNTING PROBLEM ON AFFINE DELIGNE-LUSZTIG VARIETIES***

**Speaker: Yihang Zhu**  
**Tsinghua University**

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**Venue: Room 102, Shanghai Center for Mathematical Sciences**

### **Abstract:**

Affine Deligne-Lusztig varieties (ADLVs) naturally arise in the study of the mod  $p$  reduction of Shimura varieties. In the Langlands-Kottwitz method, some counting on ADLVs is done in order to relate the cohomology of Shimura varieties with the Arthur-Selberg trace formula. Motivated by this, one speculates that a suitable counting problem on ADLVs might on the one hand relate to cohomological information and on the other hand relate to local harmonic analysis. In this talk, we propose a natural counting problem. We explain how it can be explicitly calculated in some simple cases, and observe a somewhat mysterious relationship with the cohomology of  $p$ -adic period domains (through the "twin tower construction"). This is joint work with Rong Zhou.