

LOCAL HARMONIC ANALYSIS SEMINAR

ORGANIZERS: ERIC CHEN, MARCO SANGIOVANNI

1. SPHERICAL VARIETIES

- (0) **Introduction (Marco and Eric).** Introduction and motivation: a sketch of the global conjectures, scattering, unfolding the Hecke integral, Waldspurger's formula, applications to Euler systems.
- (1) **Introduction to spherical varieties (Eric).** Basic definitions and structure theory of spherical varieties. Combinatorial definition of dual group of a spherical variety.
- (2) **Dual group of spherical variety (Marco and Linus).** Satake isomorphism and geometric Satake. Relation with the Gaitsgory–Nadler dual group.
- (3) **Examples (Trajan).** Compute examples of the structures introduced so far, classification in low ranks.

2. SCATTERING AND ASYMPTOTICS

- (4) **Lax–Phillips scattering theory (Vikram).** Give the toy model of scattering on $\mathbb{R}$, and solving the wave equation on the modular curve using scattering theory.