

Vorlesung (V4A5 Representation Theory I): Langlands Correspondence

The aim of the course is to induce some familiarity with the objects that are bound together by the Langlands conjectures. The format of the course will be somewhat informal, and discuss various examples that are useful to achieve this goal. Among the topics to be discussed are the dual group and the associated notion of L-group, L-functions for automorphic representations and for representations of local groups, construction of representations, restriction problems, etc.

Prerequisites are Algebraic Number Theory (in particular local and global fields, and Adèles) and Linear Algebraic Groups.

LITERATUR

- [1] Arthur, James, *Unipotent automorphic representations: conjectures*. Orbits unipotentes et représentations, II. Astérisque No. 171-172 (1989), 13–71
- [2] Borel, Armand, *Formes automorphes et séries de Dirichlet (d'après R. P. Langlands)* Séminaire Bourbaki (1974/1975: Exposés Nos. 453–470), Exp. No. 466, pp. 183–222. Lecture Notes in Math., Vol. 514, Springer, Berlin, 1976.
- [3] Wee Teck Gan, Benedict H. Gross, Dipendra Prasad, *Symplectic local root numbers, central critical L-values, and restriction problems in the representation theory of classical groups*, arXiv:0909.2999
- [4] Wee Teck Gan, Benedict H. Gross, Dipendra Prasad, *Restrictions of representations of classical groups: examples*, arXiv:0909.2993
- [5] Knapp, A. W. *Introduction to the Langlands program*. Representation theory and automorphic forms (Edinburgh, 1996), 245–302, Proc. Sympos. Pure Math., 61, Amer. Math. Soc., Providence, RI, 1997.
- [6] Knapp, A. W. *Local Langlands correspondence: the Archimedean case*. Motives (Seattle, WA, 1991), 393–410, Proc. Sympos. Pure Math., 55, Part 2, Amer. Math. Soc., Providence, RI, 1994.
- [7] Kudla, Stephen S. *The local Langlands correspondence: the non-Archimedean case*. Motives (Seattle, WA, 1991), 365–391, Proc. Sympos. Pure Math., 55, Part 2, Amer. Math. Soc., Providence, RI, 1994.
- [8] Langlands, R. P. *Problems in the theory of automorphic forms*. Lectures in modern analysis and applications, III, pp. 18–61. Lecture Notes in Math., Vol. 170, Springer, Berlin, 1970.
- [9] Vogan, David A., Jr. *The local Langlands conjecture*. Representation theory of groups and algebras, 305–379, Contemp. Math., 145, Amer. Math. Soc., Providence, RI, 1993.