

Mondays 16-18, SR5.

The Farrell-Jones Conjecture gives a homological formula for the K -theory of discrete group rings. For totally disconnected groups, and in particular for p -adic groups, an analog of the group ring is the Hecke algebra and there is currently interest in formulating a version for the Hecke algebra in this context. An interesting question is how such an Isomorphism Conjecture is related to the representation theory of p -adic Lie groups. In this seminar we will see an introduction to both topics.

The talks will be assigned at the end of the first session.

Schedule

- *Introduction to Isomorphism Conjectures*
9.10.17, Arthur Bartels.
- *The Farrell-Jones Conjecture for discrete $CAT(0)$ -groups*
23.10.17, Arthur Bartels.
- *Hecke algebras and Isomorphism Conjectures*
30.10.17, Arthur Bartels.
Literature: [3, 1.1–1.3].
- *Smooth representations and modules over the Hecke algebra*
6.11.17, N.N.
Literature: [3, 1.4, 1.5].
- *Cuspidal representations*
13.11.17, N.N.
Literature: [3, 1.6]
- *Induction and restriction*
20.11.17, N.N.
Literature: [3, 1.7, 1.8]
- *Structure theory of reductive p -adic groups*
27.11.17, N.N.
The speaker should in particular discuss the case of the general linear group in detail.
Literature: [3, 2.1], [1, II.3.1–3.3], [2, II.1].
- *Jacquet functors*
4.12.17, N.N.
Literature: [3, 2.2–2.4]
- *Buildings for p -adic groups*
11.12.17, Linus Kramer
- *Coefficient systems on buildings and resolutions of representations*
18.12.17, Peter Schneider
Literature: [8, 9].
- 8.1.18, N.N.

- 15.1.18, N.N.
- 22.1.18, N.N.
- 29.1.18, N.N.

REFERENCES

- [1] I. N. Bernstein and A. V. Zelevinskiĭ. Representations of the group $GL(n, F)$, where F is a local non-Archimedean field. *Uspehi Mat. Nauk*, 31(3(189)):5–70, 1976.
- [2] J. Bernstein. Draft of: Representations of p -adic groups. Notes by Karl E. Rumelhart, 1992.
- [3] P. Cartier. Representations of p -adic groups: a survey. In *Automorphic forms, representations and L -functions (Proc. Sympos. Pure Math., Oregon State Univ., Corvallis, Ore., 1977), Part 1*, Proc. Sympos. Pure Math., XXXIII, pages 111–155. Amer. Math. Soc., Providence, R.I., 1979.
- [4] W. Casselman. introduction to the theory of admissible representations of p -adic reductive groups. Draft, Notes by Paul Sally, 1995.
- [5] J.-F. Dat. On the K_0 of a p -adic group. *Invent. Math.*, 140(1):171–226, 2000.
- [6] J.-F. Dat. Quelques propriétés des idempotents centraux des groupes p -adiques. *J. Reine Angew. Math.*, 554:69–103, 2003.
- [7] W. Lück and H. Reich. The Baum-Connes and the Farrell-Jones conjectures in K - and L -theory. In *Handbook of K -theory. Vol. 1, 2*, pages 703–842. Springer, Berlin, 2005.
- [8] P. Schneider and U. Stuhler. Resolutions for smooth representations of the general linear group over a local field. *J. Reine Angew. Math.*, 436:19–32, 1993.
- [9] P. Schneider and U. Stuhler. Representation theory and sheaves on the Bruhat-Tits building. *Inst. Hautes Études Sci. Publ. Math.*, (85):97–191, 1997.