p-ADIC HODGE THEORY STUDY GROUP PLAN

1 (Lambert): Overview of ℓ-adic representations [3, Chapter 1]. Aim to understand definitions appearing in [1, Table I.3] (quasi-unipotent, unipotent, good reduction).
2 (Finn): Motivation and Overview [2, I.1], [5, I.1], [1, I].
3 (James Timmins): Étale ϕ-modules ([2, I.3], especially Theorem 3.3.4; [3, Chapter 2], especially Theorem 2.33; [4, Chapter 2]).
4 (James Taylor): Formalism of admissible representations ([2, I.5], especially Theorem 5.2.1; [5, III.1]).
5 (Arun): Hodge-Tate representations and B_{HT} ([2, I.2], especially Theorem 2.4.11; [3, 5.1]).
6 (Rodrigo): Perfectoid fields, A_{inf}, and B_{dR} (With perfectoid fields and A_{inf}: [5, III.2.1 - III.2.2], [4, 3-7]. Without perfectoid fields: [2, I.4], [5, II.2], [3, 5.2])
7 (George): de-Rham representations ([2, II.6]; [5, III.2]; [3, Chapter 5])
8 (Lukas): Isocrystals and filtered ϕ-modules ([2, II. 7.3], motivated by p-divisible groups [2, II.7], especially Proposition 7.2.6). For a good introduction to p-divisible groups see [5, II].
9 (Hårvard): (ϕ, N)-modules ([2, II.8], especially Definition 8.2.5, Definition 8.2.9, and the paragraph directly before Section 8.3; [3, 6.4])
10 (Martin): Crystalline representations and B_{cris} ([2, II.9]; [5, III.3]; [1, II.3]; [3, Chapter 6]; [4, 11,12]).
11 (-): Semistable representations and B_{st} ([2, II.9]; [3, Chapter 6]; [1, II.3]). If time permits, an overview of all the period rings, with a comment on their topologies (a good starting point is [1, II.3.5]).
12 (Konstantin): (ϕ, Γ)-modules ([2, VI.13-VI.13], especially section III.13.6; [6] for a more detailed discussion, especially Theorem 3.3.10; [4, Chapter 3]; [3, 4.3, 4.4]).

Below the references are to the name of the corresponding file on the shared folder.

References

[1] Berger.
[2] Brinon, Conrad.
[3] Fontaine, Ouyang.
[4] Gullota.
[5] Hong.
[6] Schneider.

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