Oberseminar "Hochschild cohomology"

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Our goal is to read most of the book "Hochschild Cohomology for Algebras" by Sarah Witherspoon (AMS 2019).

Each paragraph in the book contains examples and/or exercises. The speakers should **discuss as many of the examples as possible**. If time permits (which often will be the case) some of the exercises should be presented as well.

General conventions: All rings and modules are unital, all ring homomorphisms preserve the unit. If k is a commutative ring then a k-algebra A is a ring equipped with a ring homomorphism $k \to A$ (usually suppressed in the notation) whose image is contained in the center of A.

- TALK 1: (12.10., Peter) Introduction: Chap. 1.

- TALK 2: (19.10.) Cup and Yoneda products: Chap. 2.1-3.

- TALK 3: (26.10.) Product of extensions, actions. Chap. 2.4-5. In particular: Preview the paragraph before Example 2.5.10. Then fully explain this example.

- TALK 4: (02.11.) Tensor product of algebras: Chap. 3.1-2. Include as many examples as possible.

- TALK 5: (09.11.) Koszulity: Chap. 3.3-4.

- TALK 6: (16.11.) Smooth algebras: Chap. 4.1-2.

- TALK 7: (23.11.) Calabi-Yau algebras: Chap. 4.3 and 4.5.

- TALK 8: (30.11.) Deformation theory: Chap. 5.1-2.

- TALK 9: (07.12.) Application to Poisson algebras and universal enveloping algebras: Chap. 5.3-5.

- TALK 10: (14.12.) Gerstenhaber bracket: Chap. 6.1-2.

- TALK 11: (21.12.) More formulas for the Gerstenhaber bracket: Chap. 6.3-4.

- TALK 12: (11.01.) A_∞-algebras: Chap. 7.1-2. Include examples!

- TALK 13: (18.01.) Formality and Koszul algebras, A_∞-center: Chap. 7.3-4. Explain a bit more about the strategy of the proof of Lemma 7.3.2 (Chap. V in the thesis (2011) of A.B. Connor).

- TALK 14: (25.01.) Support varieties: Chap. 8.1-3 (8.1 should be well known).

- TALK 15: (01.02.) (reserve spot)