Reading Course

Fourier–Mukai Transforms in Algebraic Geometry

Matthias Paulsen

Monday, 4pm–6pm, B 251

On each date, we talk about the mentioned sections of the book, so everyone should read them and try to solve interesting exercises therein *until* the stated date.

October 14, 2019 Motivation and overview (nothing to read)

October 21, 2019 §1.1: Additive categories (pages 1–11)

October 28, 2019 §1.2: Triangulated categories (pages 11–19)

November 4, 2019 §1.3 and §1.4: Equivalences and decompositions (pages 19–26)

November 11, 2019 §2.1 until Exercise 2.33: Derived categories (pages 27–39)

November 18, 2019 Rest of §2.1 and §2.2: Derived functors (pages 39–52)

November 25, 2019 §2.3: Spectral sequences (pages 52–61)

December 2, 2019 §3.1 and §3.2: Derived categories of coherent sheaves (pages 62–70)

December 9, 2019 §3.3 until Tensor product: Useful derived functors I (pages 71–80)

December 16, 2019 Rest of §3.3 and §3.4: Useful derived functors II (pages 80–89)

December 23, 2019 §4.1: Ample canonical bundle (pages 90–99)

January 13, 2020 §4.2 and §4.3: Ample sequences (pages 99–112)

January 20, 2020 §5.1: Fourier–Mukai transforms (pages 113–123)

January 27, 2020 §7.1 and §7.2: Equivalence criteria (pages 154–161)

February 3, 2020 Final discussion (read further sections you are interested in)