Elliptic Curves

Topics in Mathematical Science III, Nagoya University, Spring 2024

Homepage for this course: `https://www.henrikbachmann.com/ec_2024.html`.

- **Contact**
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- **Lecture notes:**
  I will provide handwritten lecture notes after each lecture. I might also prepare lecture notes in Latex. Please check the homepage regularly for updates. If you find any typos in the notes please let me know.

- **Lectures**
  There will be 15 lectures, all on Friday 1st period 8:45-10:15 in Room 453 (Math building):

  1. April: 04/12, 04/19, 04/26.
  2. May: 05/10, 05/17, 05/24, 05/31.
  3. June: 06/14, 06/21, 06/28.
  4. July: 07/05, 07/12, 07/19, 07/26.
  5. August: 08/02.

  Notice that there are no lectures on 05/03 (Golden week) and 06/07 (Medai-sai). We will not use the make-up day on 06/05 (Wednesday).

- **Grading & Exercises:**
  The grading will be based on written homework assignments. The first homework sheet will appear in TACT in the coming weeks. Be sure to be member of `https://tact.ac.thers.ac.jp/portal/site/n_2024_3211089` and be aware of TACT announcements.

- **Literature:**
  There are various books on elliptic curves and lecture notes, which can be found in the library and online. Below you can find a list of standard books. For a start, I recommend [K],[LR],[ST],[M] and for advanced topics [S1] and [S2]. The lecture will probably follow [ST].

References

[K] A. W. Knapp: *Elliptic Curves*, Mathematical Notes, No. 40. Princeton University Press, Princeton, NJ, 1992.

[LR] A. Lozano-Robledo: *Elliptic Curves, Modular Forms, and Their L-functions*, Student Mathematical Library, No. 58. American Mathematical Society, Providence, RI, 2011.

[M] J.S. Milne: *Elliptic Curves*, World Scientific Publishing Co., Singapore, 2021.

[S1] J. H. Silverman: *The Arithmetic of Elliptic Curves*, Graduate Texts in Mathematics, No. 106. Springer-Verlag, New York, 1986.

[S2] J. H. Silverman: *Advanced Topics in the Arithmetic of Elliptic Curves*, Graduate Texts in Mathematics, No. 151. Springer-Verlag, New York, 1994.

[ST] J. H. Silverman, J. Tate: *Rational Points on Elliptic Curves*, Undergraduate Texts in Mathematics. Springer-Verlag, New York, 1992.