

Tropical Geometry

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Timetable: 16 hrs. Regularly, Thursday 14:30-16:00. Torre Archimede, Room 1BC/45. First meeting of the course: Thursday, Jan. 16, at 13:00, room 1C/150

Course requirements: As prerequisites, some familiarity with p -adic numbers and functions, and with (complex) Riemann surfaces. Some knowledge of cohomology (simplicial, De Rham, coherent,..) will be helpful.

Examination and grading: To be arranged with the organizers.

SSD: MAT/03

Aim: To acquire new instruments to understand the geometry of algebraic curves (and perhaps of surfaces) and of their moduli spaces.

Course contents: We will discuss some non-archimedean (especially p -adic) analytic geometry in the Berkovich style, with emphasis to smooth curves and their semistable models. We will discuss tropical geometry, again with emphasis to tropical curves, under various viewpoints. We will review the classical origin of tropicalization, via limits of log-maps, the abstract definite as algebraic geometry over the tropical real semiring. We will describe the connection between the Berkovich analytification and tropicalization of complex algebraic curves.