

Abstract of the introductory talk by Wojtek Wawrow: Special values of L -functions. L -functions are certain kinds of analytic functions which can be attached to various arithmetic objects. It turns out that values of those functions at particular points can carry deep arithmetic information. In this talk we will explore some elementary instances of such phenomena, highlighting the directions in which this theory generalizes.

Abstract of the main lecture by Sarah Zerbes: Euler systems and the Birch–Swinnerton-Dyer conjecture. L -functions are one of the central objects of study in number theory. There are many beautiful theorems and many more open conjectures linking their values to arithmetic problems. The most famous example is the conjecture of Birch and Swinnerton-Dyer, which is one of the Clay Millennium Prize Problems. I will discuss this conjecture and some related open problems, and I will describe some recent progress on these conjectures, using tools called ‘Euler systems’.