

LTCC Advanced Course

Title: Number Theory

Basic Details:

- Core Audience: Second/third year (pure)
- Course Format: Extended

Course Description:

- Keywords: P-adic L-functions, Iwasawa Main Conjecture, Modular Forms
- Syllabus: An introduction to p-adic L-functions and their applications in algebraic number theory, including: the Kubota-Leopoldt p-adic Zeta function, the p-adic family of Eisenstein series, the Iwasawa Main Conjecture, and (if time allows) p-adic L-functions of modular forms.

Recommended reading: J. Coates and R. Sujatha, Cyclotomic Fields and Zeta Values

Additional Optional reading: Washington, Lawrence C., Introduction to Cyclotomic Fields

Prerequisites: Some knowledge of algebraic number theory (e.g. p-adic fields, cyclotomic fields). A basic understanding of classical L-functions and class field theory will be useful.

Format:

- No of discussion/problem sheets (typically 4 for extended courses, and 1 for intensive courses, with solutions): Two smaller sheets (one introductory and one more advanced).
- Electronic lecture notes (these are strongly encouraged, as they will form the core of the individual study of the students): Yes
- Necessary support facilities: None
- Necessary software requirements for computing facilities.
- Lecture/computer session/tutorial/discussion split (hours of each): 10 hours of lectures

Lecturer Details:

- Lecturers: Rodrigues Jacinto Joaquín and Chris Williams
- Lecturer home institution: UCL and Imperial College
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