

LTCC Advanced Course

Title: The Hardy-Littlewood Circle method

Basic Details:

- Core Audience: 1-3rd year students, pure mathematics
- Course Format: 5, 2hr lectures

Course Description:

- Keywords: Analytic number theory, circle method, Waring's problem, Vinogradov's three primes theorem, major arcs, minor arcs, singular series
- Syllabus:
 - 1) Survey of the method
 - 2) Applying the circle method to Waring's problem: major and minor arc decomposition, singular series, asymptotic formula for the number of representations of an integer as sum of five squares
 - 3) Time permitting: Vinogradov's three primes theorem

Recommended reading: Analytic Methods for Diophantine Equations and Diophantine Inequalities, H. Davenport

Additional Optional reading:

An Introduction to the Circle Method, M. Ram Murty, Kaneenika Sinha

Multiplicative Number Theory, H. Davenport

- Prerequisites: A first course in analytic number theory

Format:

- No of discussion/problem sheets: 2 or 3 without solutions

Electronic lecture notes (these are strongly encouraged, as they will form the core of the individual study of the students) :n/a, the course notes will follow the recommended book

- Necessary support facilities: we need multiple large boards (at least 5 meters in length)

Lecturer Details:

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