# INDIAN STATISTICAL INSTITUTE

Theoretical Statistics and Mathematics Unit, Kolkata

## LECTURE SERIES

**DATE & TIME:**

**Lecture 1:** January 15, 2024 (From 11:00 AM to 1:00 PM)

**Lecture 2:** January 17, 2024 (From 02:00 PM to 4:00 PM)

**Lecture 3:** January 19, 2024 (From 11:00 AM to 1:00 PM)

**VENUE:**

## L-infinity

**(5th Floor, A.N. Kolmogorov Bhavan), ISI Kolkata**

**TITLE:**

# From Zero Detection to Large Values of Dirichlet polynomials.

**SPEAKER:**


## Olivier Ramaré

CNRS/Aix Marseille Université


## ABSTRACT:


***The first lecture will describe in a uniform manner several classical zero detection methods, the way upper bounds for moments appears in what is at first sight a lower bound problem and how the distribution of large values of Dirichlet polynomials enters the game.***

***The second lecture will introduce the classical main tools: Montgomery's L^2 theorem, Halasz majorants, Huxley dissection principle, the powering argument, the reflection argument, Jutila's inequality and Bourgain's inequality. We will end with the Heath-Brown setup.***

***The third lecture will be more open. The stress will be on technical issues that are less understood around an intriguing lemma of Ivic. Elements of a proof of Bourgain's estimate using additive combinatorics will be presented.***


**ALL ARE CORDIALLY INVITED**