

## **Webinar: The Circle Method: 102 Not Out by Dr. Kaneenika Sinha (IISER Pune)**

by Manjil Saikia - Sunday, September 20, 2020

<https://gonitsora.com/webinar-sinha/>

Gonit Sora is organizing a webinar to be delivered by **Dr. Kaneenika Sinha** of the Indian Institute of Science Education and Research, Pune. The details are given below.

Date: **27 September, 2020 (Sunday)**

Time: **4 pm IST** (note the unusual time)

Title: **The Circle Method: 102 Not Out**

**Abstract:** In a phenomenal 1918 paper, [G. H. Hardy](#) and [Srinivasa Ramanujan](#) outlined a method to estimate the number of "partitions" of large natural numbers, that is, the number of ways of writing a number as sums of smaller natural numbers. After Ramanujan's unfortunate early demise, this method was developed by Hardy and Littlewood into what is now called the circle method in common parlance. Hardy and Littlewood used this method, for example, to obtain an asymptotic formula for the number of ways a natural number can be written as a sum of k-th powers of smaller natural numbers.

The circle method also addresses other important problems in mathematics, for example, a [famous conjecture of Goldbach](#) which says that any natural number  $>1$  can be written as a sum of at most three prime numbers. The key idea of the circle method is to convert an additive problem into estimating what are called "exponential sums" at special points on a circle. In this talk, we will discuss the ideas behind the circle method and applications to various additive problems.

**About the Speaker:** *Dr. Kaneenika Sinha is an Associate Professor of Mathematics at the Indian Institute of Science Education and Research (IISER), Pune. She did her PhD at Queen's University, Canada after which she held positions at the University of Toronto, University of Alberta,*

*Mathematical Sciences Research Institute (MSRI) Berkeley and IISER Kolkata before moving to IISER Pune. Her research interests are in analytic number theory and arithmetic statistics of modular forms. She has also published expository articles on number theory as well as her research work in The Hindu, The Indian Express and others.*

The talk will be suitable for a general audience (college students are specially welcome), and will be held online via Zoom. It will also be livestreamed on our [Facebook page](#).

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