



Theoretical Statistics and Mathematics Unit, Kolkata INDIAN STATISTICAL INSTITUTE

SEMINAR

(4th Lecture)

Date: August 28, 2025

Time: 02:30 PM

VENUE:

L- Infinity

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

TITLE:

Perfectoid Spaces

SPEAKER:

Om Sai

ISI Kolkata

ABSTRACT:

Perfectoid spaces were developed by Peter Scholze [1] in the last decade from which he deduced Deligne's weight monodromy conjecture in certain cases. Since then the theory has found many applications in p -adic geometry and related areas.

In this weekly lecture series, I aim to develop the theory of perfectoid spaces following Bhargav Bhatt's notes [2]. In the first lecture I'll talk about Perfections and Tilting for a ring and discuss some properties.

References: [1] P. Scholze, Perfectoid spaces, Publ. Math. Inst. Hautes ´ Etudes Sci. 116 (2012), 245-313.

[2] B. Bhatt, Lecture notes for a class on Perfectoid spaces.

[3] O. Gabber and L. Ramero, Almost ring theory, Lecture Notes in Math. 1800, Springer (2003).

[4] G. Faltings, p -adic Hodge theory, J. Amer. Math. Soc. 1(1) (1988), 255–299.

[5] R. Huber. Ètale cohomology of rigid analytic varieties and adic spaces. Aspects of Mathematics, E30. Friedr. Vieweg & Sohn, Braunschweig, 1996.

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