

IMAR Monthly Lecture

Torsion Points of Formal Groups and Ramified Extensions of p -adic Fields

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IMAR, *Miron Nicolescu* amphitheater

Abstract: Lubin-Tate theory shows that the torsion points of a one-dimensional formal group generate the maximal abelian totally ramified extension of a p -adic field, revealing a deep link between formal groups and local class field theory. In this talk we discuss how this perspective extends to higher-dimensional formal groups and to towers of field extensions arising from iterated constructions.

We present recent results on two-dimensional Lubin-Tate formal groups, the ramification properties of the towers generated by their torsion points, and related iterated extensions of p -adic fields. These towers provide examples of deeply ramified and perfectoid phenomena. We also discuss rigidity results showing that, under suitable conditions, the torsion points can determine the formal group itself. These results are based on joint works with R. Abdellatif, M. Barcau and A. Sarkar.