

p -adic Motives and Special Values of Zeta Functions

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In 1966, Tate proposed the Artin–Tate conjectures, which describe the special values of zeta functions associated to surfaces over finite fields. Building on this, and assuming the Tate conjecture, Milne and Ramachandran formulated and proved analogous conjectures for smooth proper schemes over finite fields. However, the formulation of these conjectures already relied on other unproven conjectures.

In this talk, I will present an unconditional formulation and proof of these conjectures. The approach relies on the theory of F -Gauges, a notion introduced by Fontaine–Jannsen and further developed by Bhatt–Lurie and Drinfel'd, which has been proposed as a candidate for a theory of p -adic motives. A central role is also played by the notion of stable Bockstein characteristics, which will be introduced in the talk.

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