

“Let us fix for simplicity an isomorphism ${}_l\infty k^\times \simeq \mathbf{Q}_l/\mathbf{Z}_l$ — a heresy!”

— Alexander Grothendieck (1968)

The Trivial Notions Seminar Proudly Announces

The Standard Conjectures

A talk by

Nicolás Ojeda Bär

Abstract

The Weil conjectures (which say something about the number of solutions of equations over finite fields) were formulated by André Weil in 1948. Thanks to work of Grothendieck and his students, all but one had been proven by 1964. However, the remaining one, the so-called “Riemann Hypothesis,” resisted all attacks until it was finally proved by Deligne in 1974. Grothendieck was never really satisfied with Deligne’s proof because he thought the technique involved was too clever. Meanwhile, he had developed an alternative approach that consisted in proving a completely different set of Standard Conjectures, which made sense for any base field and some of which were known to be consequences of Hodge theory when working in characteristic zero. These conjectures imply those of Weil and also many other deep results in number theory (some of which are still wide open). In this talk, we will explain the statement of the Standard Conjectures, and the strikingly conceptual manner in which they imply some of these results.

Thursday, September 17th at 2:07 pm
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