

Souvent imité, jamais égalé : the field $\mathbb{F}_p^{alg}((t))$

Gönenç Onay

Abstract

While the first order properties of several algebraic structures, such as \mathbb{C} , \mathbb{R} and $\mathbb{C}((t))$, were quite well characterized in the last century, and have now fruitful applications to algebraic/real/non-archimedean geometry respectively, the case of Laurent series over general fields of positive characteristic is still widely open. This problem has resisted the concerted efforts of algebraic model theorists for over five decades though it has become clear that they encode strictly complex phenomena than their characteristic zero analogs.

After quickly surveying related known results in model theory of valued fields, I will discuss yet another incomplete -nevertheless promising- attempt to axiomatize the field $\mathbb{F}_p^{alg}((t))$ and present a new partial result. This is joint work with Françoise Delon and Arno Fehm.