

# Primes, knots and the scaling site

*Monday, 10 June 2024 10:00 (1 hour)*

The scaling site (a Grothendieck topos) and its periodic orbits of length  $\log p$  provide a geometric construction where to interpret the well-known analogy between primes and knots. The role of the maximal abelian cover of the scaling site is played by the adèle class space of the rationals. The inverse image of a  $p$ -periodic orbit is canonically isomorphic to the mapping torus of the multiplication by the  $p$ -Frobenius in the abelianized étale fundamental group of the spectrum of the integers localized at  $p$ , thus exhibiting the linking of  $p$  with the other rational primes.

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