

Semi-direct product Galois covers of curves in characteristic p

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Let k be an algebraically closed field with characteristic $p > 0$. A result of Abhyankar shows that the algebraic fundamental group of the affine line \mathbb{A}^1_k over k is contained in the set of quasi p -groups. In joint work with R. Priez, K. Stevenson, E. Ozman et al., I consider ℓ -covers of \mathbb{A}^1_k ramified only at ∞ and find the minimal genus of such a cover and the number of these covers. We show that the minimal genus depends only on ℓ and p and the number of these covers equals the order of ℓ modulo p , and this talk aims to give an overview of these results.