

*Research project 1***Tame Galois actions on schemes**

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Research project short description: Tame ramified Galois actions are a classical topic in Number Theory. Galois theory is possible for schemes too. Several type of group actions can be defined on varieties and schemes: by abstract groups, algebraic groups, group schemes... If X is a scheme with a group action and Z is a closed subscheme one can give different meanings to the notion that the action is tamely ramified at Z . A fairly satisfactory theory has been developed for actions by finite abstract groups (Grothendieck et al.). The aim of the project is investigate tame actions by group schemes.

References:

Grothendieck, A.: *Revêtements étales et groupe fondamental*, Springer Lecture Notes in Mathematics 224 (1971).
Kerz, M. and Schmidt, A. *On different notions of tameness in arithmetic geometry*, arXiv:0807.0979.