



Universität
Basel

Research Project

Diophantine and Arithmetic Geometry

Third-party funded project

Project title Diophantine and Arithmetic Geometry

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Organisation / Research unit

Departement Mathematik und Informatik / Zahlentheorie (Habegger)

Department

Project start 01.07.2017

Probable end 30.06.2020

Status Completed

This research project is at the crossroads of diophantine geometry and arithmetic algebraic geometry. The overall leitmotif is to understand how geometry and arithmetic are intertwined in certain objects, be these of a purely diophantine nature, such as algebraic varieties over number fields, or of an arithmetic-geometric nature, such as families of abelian varieties and Shimura varieties. The project features roughly four different lines of research. First, some problems related to the André-Oort conjecture are studied. Second, there is some follow-up work on my recent proof of the Bounded Height Conjecture for general semiabelian varieties. Third, I aim to prove a certain conjecture in (p-adic) anabelian geometry. Finally, the behavior of the Faltings height in certain settings will be investigated.

Keywords André-Oort-Vermutung; Höhentheorie; diophantische Geometrie; arithmetische algebraische Geometrie; anabelsche Geometrie; Faltingshöhe; Höhenschränken; Höhenschränkenvermutung

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