Boaz Moerman

PhD student

- Born in Nieuwegein (Netherlands) on April 21st 1998
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About Me

I am doing a PhD studying special subsets of rational points on algebraic varieties. These points, called $\mathcal{M}$-points generalize integral, Campana, and Darmon points.
Currently I am working on adelic approximation for $\mathcal{M}$-points as well as an analogue for Manin's conjecture for such points, particularly on toric varieties. Alongside this, I am working on connections between stacks and such points.

Employment

2021 – 2025 **PhD** Utrecht University
Currently ongoing thesis in arithmetic geometry, with emphasis on Campana points and toric varieties. Advisor: Dr. M. Pieropan

2017 – 2021 **Tutorial assistant** Radboud University
Taught and graded students in 10 courses

Education

2019 – 2021 **Master in Mathematics, cum laude** Radboud University
Thesis: *Genus 2 fibrations*, Advisor: Prof. Dr. B. Moonen

2017 – 2019 **Honours program** Radboud University
Two year extracurricular program of 48 ECTS
First year project: wrote research proposal for planetesimal formation. Joint with J. de Kleuver, J. Nieuwveld, C. ten Dam
Second year project: greatly extended bachelor thesis (see below)

2016 – 2019 **Bachelor in Mathematics, cum laude** Radboud University
Thesis: *Eisenstein series and periods*, Advisor: Prof. Dr. W. Zudilin. Expanded on during my masters program and published as *L-values for conductor 32*.

Publications

2024 **Manins conjecture for generalized Campana points on toric varieties**
In preparation

2024 **Generalized Campana points and adelic approximation on toric varieties**
Preprint
arXiv:2407.03048

2022 **L-values for conductor 32**
Journal of Number theory
DOI: 10.1016/j.jnt.2021.09.013, ISSN: 0022-314X

Talks given

10/2024 **Intercity number theory seminar** Leiden University, Leiden, the Netherlands
M-points and adelic approximation on toric varieties

09/2024 **ICMS seminar** Bulgarian Academy of Sciences, Sofia, Bulgaria
Generalized integral points and strong approximation

07/2024 **The Mordell conjecture 100 years later** MIT, Cambridge, United States
Generalized Campana points and adelic approximation

06/2024 **Learning seminar on stacks** Online
Deligne-Mumford stacks and examples

04/2024 **Rational points consortium** Utrecht University
M-approximation on toric varieties

04/2024 **Campana points seminar** Utrecht University
M-points

03/2024 **Rational points consortium** Utrecht University
Arakelov theory: arithmetic curves

02/2024 **Campana points seminar** Utrecht University
Darmon points and root stacks

11/2023 **Junior AG day** Utrecht University
Generalized integral points and strong approximation

08/2023 **GQT school and colloquium** Groesbeek, the Netherlands
Adelic approximation of generalized integral points

06/2023 **Journées Arithmétiques** Université de Lorraine, Nancy, France
Approximation for generalized Campana points

06/2023 **Geometric and Arithmetic Frontiers of Orbifolds II: Arithmetic and hyperbolicity** Université de Strasbourg
Approximation for generalized Campana points

04/2023 **DIAMANT symposium** Utrecht
Approximation for generalized Campana points on projective space

03/2023 **LENT seminar** Utrecht University
Approximation for generalized Campana points on toric varieties

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09/2022	**Algebraic Geometry seminar**	Utrecht University
	Weak approximation and the Hilbert property for Campana points	
02/2022	**Algebraic Geometry seminar**	Utrecht University
	Cox coordinates for toric varieties	
11/2021	**Mazur seminar**	Utrecht University
	Jacobians and criteria for the rank	
10/2021	**Circle method seminar**	Online
	Introduction to the Circle method and Warings problem	

Posters presented

06/2024	**GAeL XXXI**	Turin
	M-points and adelic approximation	
03/2024	**Enumerative Geometry and Arithmetic**	Lorentz Center, Leiden
	M-points and adelic approximation	

Seminars organized

05/2024	**Gong show**	Utrecht University
	Series of lighting talks by PhD students at the Utrecht Geometry Centre	

Conferences attended

07/2024	**The Mordell conjecture 100 years later**	MIT, Cambridge, United States
	Link to site	
06/2024	**GAeL XXXI**	Turin, Italy
	Link to site	
04/2024	**Diamant symposium**	Utrecht, the Netherlands
03/2024	**Enumerative Geometry and Arithmetic**	Lorentz Center, Leiden, the Netherlands
	Link to site	
11/2023	**Diamant symposium**	Eindhoven, the Netherands
08/2023	**GQT school and colloquium**	Groesbeek, the Netherlands
	School and conference on geometry and topology.	
08/2023	**ENTR23**	Bielefeld University
	Link to site	
06/2023	**Journées Arithmétiques**	Université de Lorraine, Nancy, France
	Link to site	
06/2023	**Geometric and Arithmetic Frontiers of Orbifolds II: Arithmetic and hyperbolicity**	Université de Strasbourg, France
	Link to site	
05/2023	**An Expedition into Arithmetic Geometry**	Lorentz Center, Leiden, the Netherlands
	Link to site	
04/2023	**Diamant symposium**	Utrecht, the Netherlands
03/2023	**FRACASSO**	Université de Bordeaux, France
	Workshop on rationally connected varieties. *Link to site*	
02/2023	**SAGA**	CIRM, Marseille, France
	Conference on arithmetic geometry. *Link to site*	
02/2023	**intro to SAGA**	CIRM, Marseille, France
	Winter school on arithmetic geometry. *Link to site*	
11/2022	**DIAMANT symposium**	Leiden, the Netherlands
08/2022	**GQT school and colloquium**	Zeist, the Netherlands
	School and conference on geometry and topology.	
07/2022	**Meeting on GDR singularities**	Aussois, France
	Conference on singularities of algebraic varieties. *Link to site*	
06/2022	**Geometric and Arithmetic Frontiers of Orbifolds**	UQAM, Montreal, Canada
	Workshop on orbifolds and stacks. *Link to site*	
04/2022	**Rational Points on Higher-Dimensional Varieties**	ICMS, Edinburgh, Scotland
	Conference on Diophantine geometry. *Link to site*	
04/2022	**DIAMANT symposium**	Utrecht, the Netherlands
11/2021	**DIAMANT symposium**	Utrecht, the Netherlands

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Seminars attended

10/2024	Intercity number theory seminar	Leiden University
06/2024	Rational points consortium	Utrecht University
06/2024	Intercity number theory seminar	Utrecht University
05/2024	Rational points consortium	Leiden University
05/2024	Young KWG day	Utrecht University
05/2024	Intercity number theory seminar	University of Groningen
05/2024–06/2024	Learning seminar on stacks	Online
04/2024	Belgian-Dutch AG day	Utrecht University
04/2024	Rational points consortium	University of Groningen
04/2024	Campana points seminar	Utrecht University
03/2024	Rational points consortium	Utrecht University
02/2024	Campana points seminar	Utrecht University
02/2024	Flatland Arithmetic	KU Leuven
01/2024	Rational points consortium	Leiden University
12/2023	Intercity number theory seminar	University of Amsterdam
12/2023	Rational points consortium	University of Groningen
11/2023	Intercity number theory seminar	Leiden University
11/2023	Junior AG day	Utrecht University
11/2023	Rational points consortium	Utrecht University
10/2023	Belgian-Dutch AG day	Leiden University
10/2023	Rational points consortium	Utrecht University
09/2023	Intercity number theory seminar	Utrecht University
09/2023–12/2023	Seminar on the conjectures of Campana, Lang and Vojta	Radboud University
09/2023	Rational points consortium	Utrecht University
06/2023	Junior AG day	University of Amsterdam
03/2023	Belgian-Dutch AG day	Radboud University
03/2023	EWM meeting	Utrecht University
01/2023	Junior AG day	Radboud University
12/2022	Intercity Geometry seminar	Utrecht University
11/2022	Intercity Geometry seminar	Leiden University
10/2022	Intercity number theory seminar	Leiden University
10/2022	Intercity Geometry seminar	Radboud University
10/2022	Junior AG day	Leiden University
10/2022	Intercity Geometry seminar	University of Amsterdam
09/2022	Belgian-Dutch AG day	KU Leuven, Belgium
09/2022	Getaltheorie in het vlakke land	Utrecht University
09/2022	EWM meeting	Vrije Universiteit Amsterdam
09/2022	Curves over finite fields and arithmetic of K3 surfaces	University of Groningen
05/2022	Intercity number theory seminar	Utrecht University
12/2021	Junior AG day	Online
11/2021	Intercity number theory seminar	Leiden University
10/2021	Intercity number theory seminar	Leiden University

Research visits

09/2024	**Visit Dr. V. Mitankin** Visit to discuss approximation properties for M-points and the associated Brauer-Manin obstruction, 9 September – 13 September	Bulgarian Academy of Sciences
02/2024	**Workshop Campana points on toric varieties II** Small scale meeting to discuss counting Campana points on toric varieties, 19 February – 23 February	University of Bristol
04/2019	**Visit Dr. M. Neururer** For discussing bachelor thesis (for honours program), 1 April – 5 April	TU Darmstadt
03/2019	**Visit Dr. F. Brunault (and R. Pengo)** For discussing bachelor thesis (for honours program), 21 March – 27 March	ENS Lyon

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Teaching experience

Teaching assistant

Summer/Fall 2024	Commutative Algebra	Utrecht University
Spring 2024	Probability Theory	Utrecht University
Summer/Fall 2023	Commutative Algebra	Utrecht University
Spring 2023	Probability Theory	Utrecht University
Winter 2023	Analyis	Utrecht University
Summer/Fall 2022	Commutative Algebra	Utrecht University
Winter 2022	Analysis	Utrecht University
Summer 2021	Linear Algebra and Infinitesimal Calculus 1	Utrecht University
Winter/Spring 2021	Complex Analysis	Radboud University
Summer/Fall 2020	Analysis 2	Radboud University
Spring 2020	Elementary Number Theory	Radboud University
Winter 2020	Introduction to Fourier Theory	Radboud University
Summer/Fall 2019	Calculus A	Radboud University
Winter/Spring 2019	Topology	Radboud University
Summer/Fall 2018	Analysis 2	Radboud University
Spring 2018	Linear Algebra B	Radboud University
Winter 2018	Famous Problems in Mathematics	Radboud University
Fall 2017	Kepler and Newton in Historical Perspective	Radboud University