





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

## Posters presented

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

## Seminars organized

05/2024	<b>Gong show</b> Series of lighting talks by PhD students at the Utrecht Geometry Centre	Utrecht University
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## Conferences attended

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

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## Seminars attended

10/2024	Belgian-Dutch Algebraic Geometry Seminar	University of Antwerp, Belgium
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–	Learning seminar on stacks	Online
06/2024		
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 Algebraic Geometry Seminar	Leiden University
10/2023	Rational points consortium	Utrecht University
09/2023	Intercity number theory seminar	Utrecht University
09/2023–	Seminar on the conjectures of Campana, Lang and Vojta	Radboud University
12/2023		
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 Algebraic Geometry Seminar	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	<b>Visit Dr. V. Mitankin</b>	Bulgarian Academy of Sciences
	Visit to discuss approximation properties for M-points and the associated Brauer-Manin obstruction, 9 September – 13 September	
02/2024	<b>Workshop Campana points on toric varieties II</b>	University of Bristol
	Small scale meeting to discuss counting Campana points on toric varieties, 19 February – 23 February	
04/2019	<b>Visit Dr. M. Neururer</b>	TU Darmstadt
	For discussing bachelor thesis (for honours program), 1 April – 5 April	
03/2019	<b>Visit Dr. F. Brunault (and R. Pengo)</b>	ENS Lyon
	For discussing bachelor thesis (for honours program), 21 March – 27 March	

### 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	Analysis	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