

Boaz Moerman

PhD student

-  Born in Nieuwegein, the 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

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|-------------|----------------------------------------------------------------------------------------------------------------------------------------------|--------------------|
| 2021 – 2025 | PhD
Currently ongoing thesis in arithmetic geometry, with emphasis on Campana points and toric varieties. Advisor: Dr. M. Pieropan | Utrecht University |
| 2017 – 2021 | Tutorial assistant
Taught and graded students in 10 courses | Radboud University |

Education

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| 2019 – 2021 | Master in Mathematics, cum laude
Thesis: <i>Genus 2 fibrations</i> , Advisor: Prof. Dr. B. Moonen | Radboud University |
| 2017 – 2019 | Honours program
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) | Radboud University |
| 2016 – 2019 | Bachelor in Mathematics, cum laude
Thesis: <i>Eisenstein series and periods</i> , Advisor: Prof. Dr. W. Zudilin. Expanded on during my masters program and published as <i>L-values for conductor 32</i> . | Radboud University |

Publications

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|------|------------------------------------------------------------------------------------------------------------------------|--|
| 2024 | Generalized Campana points of bounded height
<i>In preparation</i> | |
| 2024 | Generalized Campana points and adelic approximation on toric varieties
<i>Preprint</i>
arXiv:2407.03048 | |
| 2022 | L-values for conductor 32
<i>Journal of Number theory</i>
DOI: 10.1016/j.jnt.2021.09.013, ISSN: 0022-314X | |

Research talks given

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|---------|------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------|
| 10/2024 | Intercity number theory seminar
<i>M-points and adelic approximation on toric varieties</i> | Leiden University, Leiden, the Netherlands |
| 09/2024 | ICMS seminar
<i>Generalized integral points and strong approximation</i> | Bulgarian Academy of Sciences, Sofia, Bulgaria |
| 07/2024 | The Mordell conjecture 100 years later
<i>Generalized Campana points and adelic approximation</i> | MIT, Cambridge, United States |
| 04/2024 | Rational points consortium
<i>M-approximation on toric varieties</i> | Utrecht University |
| 04/2024 | Campana points seminar
<i>M-points</i> | Utrecht University |
| 11/2023 | Junior AG day
<i>Generalized integral points and strong approximation</i> | Utrecht University |
| 08/2023 | GQT school and colloquium
<i>Adelic approximation of generalized integral points</i> | Groesbeek, the Netherlands |
| 06/2023 | Journées Arithmétiques
<i>Approximation for generalized Campana points</i> | Université de Lorraine, Nancy, France |
| 06/2023 | Geometric and Arithmetic Frontiers of Orbifolds II: Arithmetic and hyperbolicity
<i>Approximation for generalized Campana points</i> | Université de Strasbourg |
| 04/2023 | DIAMANT symposium
<i>Approximation for generalized Campana points on projective space</i> | Utrecht |
| 03/2023 | LENT seminar
<i>Approximation for generalized Campana points on toric varieties</i> | Utrecht University |

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Learning seminar talks given

06/2024	Learning seminar on stacks <i>Deligne-Mumford stacks and examples</i>	Online
03/2024	Rational points consortium <i>Arakelov theory: arithmetic curves</i>	Utrecht University
02/2024	Campana points seminar <i>Darmon points and root stacks</i>	Utrecht University
09/2022	Algebraic Geometry seminar <i>Weak approximation and the Hilbert property for Campana points</i>	Utrecht University
02/2022	Algebraic Geometry seminar <i>Cox coordinates for toric varieties</i>	Utrecht University
11/2021	Mazur seminar <i>Jacobians and criteria for the rank</i>	Utrecht University
10/2021	Circle method seminar <i>Introduction to the Circle method and Warings problem</i>	Online

Posters presented

11/2024	Instructional workshop on rational points <i>M-points and adelic approximation</i>	Groningen, the Netherlands
06/2024	GAeL XXXI <i>M-points and adelic approximation</i>	Turin, Italy
03/2024	Enumerative Geometry and Arithmetic <i>M-points and adelic approximation</i>	Lorentz Center, Leiden

Seminars organized

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

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

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06/2022	Geometric and Arithmetic Frontiers of Orbifolds	UQAM, Montreal, Canada
	Workshop on orbifolds and stacks. <i>Link to site</i>	
04/2022	Rational Points on Higher-Dimensional Varieties	ICMS, Edinburgh, Scotland
	Conference on Diophantine geometry. <i>Link to site</i>	
04/2022	DIAMANT symposium	Utrecht, the Netherlands
11/2021	DIAMANT symposium	Utrecht, the Netherlands

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

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	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