





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

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 **Generalized Campana points of bounded height**
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

Research talks given

11/2024 **Oberseminar Diophantische Geometrie (online)** Georg-August Universität Göttingen, Germany
M-points and adelic approximation on toric varieties

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

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

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

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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Learning seminar talks given

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| 11/2024 | Learning seminar on log stacks <i>Log schemes 1</i> | Utrecht University |
| 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

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| 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

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

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

Seminars attended

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| 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

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| 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

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| 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 |