

Curriculum Vitae – Márton Hablicsek

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Department of Mathematics
Leiden University
Snellius Building, Niels Bohrweg 1
Leiden, Netherlands, 2333 CA

Citizenship: Hungarian (EU)
mhablicsek@gmail.com

EXPERIENCE	Tenured Assistant Professor, University of Leiden, 2022- Assistant Professor, University of Leiden, 2019-2021 Postdoctoral Fellow, joint position between the University of Copenhagen and the Centre for Symmetry and Deformation, 2017–2019 Research Associate, Polyhedral Structures Laboratory, School of Design, University of Pennsylvania, 2017– University of Pennsylvania, Hans Rademacher Instructor, 2014–2017
EDUCATION	University of Wisconsin - Madison - PhD in Mathematics, 2009–2014 PhD Advisor: Andrei Căldăraru PhD Thesis: <i>Derived intersections and their applications</i> Eötvös Loránd University (ELTE), Budapest, Hungary - MA in Mathematics, 2004–2009 Summa cum Laude Master’s Thesis: <i>Sum-free Sets</i>
INTERESTS	Algebraic Geometry, Combinatorics, Algebraic Graphic Statics and Applications
PUBLICATIONS	<i>Dragonfly-Inspired Wing Design Enabled by Machine Learning and Graphic Statics</i> , with Hao Zheng, Hossein Mfatteh, Masoud Akbarzadeh, and Abdolhamid Akbarzadeh, submitted, (2022) <i>Virtual Classes of Character Stacks</i> , with Ángel González-Prieto, Jesse Vogel, submitted, (2022), arxiv:2201.08699

Structural form-finding of Auxetic Materials using Graphic Statics, with Masoud Akbarzadeh, Proceedings of International Association for Shell and Spatial Structures Annual Symposia (IASS), 2021

Developing a polyhedral graphic statics formulation for tetrahedral truss analysis, with Salma Mozaffari, Masoud Akbarzadeh, Proceedings of International Association for Shell and Spatial Structures Annual Symposia (IASS), 2021

Lightweight Structures and the Geometric Equilibrium in Dragonfly Wings, with Hao Zheng, Masoud Akbarzadeh, Proceedings of International Association for Shell and Spatial Structures Annual Symposia (IASS), 2021

Virtual Classes of Representation Varieties of Upper Triangular Matrices via Topological Quantum Field Theories, with Jesse Vogel, SIGMA 18 (2022), 095, 38 pages

Algebraic 3D Graphic Statics: Constrained Areas, with Masoud Akbarzadeh, Computer-Aided Design, Volume 141 (2021)

Non-Noetherian representation categories of generalized fields, with Maël Denys, Giacomo Negrisolo, submitted, (2020)

Geometric Degrees of Freedom and Non-Conventional Spatial Structural Forms, with Masoud Akbarzadeh, Impact: Design With All Senses, Springer Nature (2019)

Weak E_2 -Morita equivalences via quantization of the 1-shifted cotangent bundle, preprint (2018), arxiv:1810:10848

Algebraic 3D Graphic Statics: reciprocal constructions, with Masoud Akbarzadeh, Yi Guo, Computer-Aided Design, Volume 108, (2019), 30–41

Developing Algebraic Constraints for Reciprocal Polyhedral Diagrams of 3D Graphic Statics, with Masoud Akbarzadeh, Yi Guo, Proceedings of the IASS Symposium 2018, Creativity in Structural Design, MIT, Boston, USA, July 16-20, 2018.

Algebraic Geometry over the residue field of the infinite place, with Máté L. Juhász, Communications in Algebra, Volume 46, Issue 10, 4149–4173 (2018), arxiv:1701.02178

Derived intersections over the Hochschild cochain complex, submitted, (2016), arxiv:1608.069655

Explicit computations of Hida families via overconvergent modular symbols, with Evan Dummit, Robert Harron, Lalit Jain, Robert Pollack, Daniel Ross, Research in Number Theory, 2:25, (2016) arxiv:1510.05795

Hodge theorem for the logarithmic de Rham complex via derived intersections, Research in the Mathematical Sciences, 7, 24 (2020), arxiv:1503.00177

On the number of rich lines in high dimensional real vector spaces, with Zachary Scherr, Discrete and Computational Geometry 55(4), 955-962, (2016), arxiv:1412.7025

Formality of derived intersections and the orbifold HKR isomorphism, with Dima Arinkin and Andrei Căldăraru, J. Algebra, 540, 100–120 (2019), arxiv:1412.5233.

On the joints problem with multiplicities, preprint (2014), arxiv:1408.5791

Derived intersections and the Hodge theorem, with Dima Arinkin and Andrei Căldăraru, Algebraic Geometry 4 (2017), 394–423, arxiv:1311.2629

An incidence conjecture of Bourgain over fields of positive characteristic, with Jordan S. Ellenberg, Forum of Mathematics, Sigma, 4, E23 (2016), arxiv:1311.1479

Kekeya sets over non-archimedean local rings, with Evan Dummit, Mathematika, **59**, (2013), 257 – 266

Power map permutations and symmetric differences in finite groups, with Guillermo Mantilla-Soler, Journal of Algebra and Applications **10** (2011), 947 – 959

Editor of two books: *Bergengóc Példatár I-II*. (mathematical problem book for high school students)

TALKS

Virtual classes of representation varieties via Landau-Ginzburg models, ICMAT Geometry seminar, Madrid, Spain, Oct 2022

Virtual classes of character stacks, GQT colloquium, Zeist, Netherlands, Aug 2022

Virtual classes of character stacks, Tianyuan Mathematical Center in Southeast China, Xiamen, China (online), May 2022

Virtual classes of character stacks, Topology, Algebraic Geometry, and Dynamics Seminar, George Mason University, Washington DC, USA, May 2022

Virtual classes of character stacks, Math-Physics Joint Seminar, University of Pennsylvania, Philadelphia, USA, May 2022

Structural form-finding of Auxetic Materials using Graphic Statics, IASS 2021, London, United Kingdom, Aug 2021

Azumaya algebras and Hodge theorem, Leiden Seminar on Non-Commutative Geometry, Leiden, Netherlands, Oct 2020

Virtual classes of representation varieties of upper triangular matrices, Algebraic Geometry and Number Theory Seminar, IST, Wien, Austria, Oct 2020

The structure of quantizations of shifted symplectic derived stacks in positive characteristics, Algebra and Number Theory Seminar, Leiden, Netherlands, Sept 2019

Extra structures on deformation quantization in positive characteristic, SYM-10-Years, Copenhagen, Denmark, June 2019

The structure of quantizations of shifted symplectic derived stacks in positive characteristics, Geometry Seminar, Trinity College Dublin, Dublin, Ireland, Mar 2019

Derived intersections and their interactions with deformation theory, Colloquium, Trinity College Dublin, Dublin, Ireland, Mar 2019

The structure of quantizations of shifted symplectic derived stacks in positive characteristics, ALPE, joint Algebraic Geometry Seminar between University of Toulouse and University of Montpellier, University of Toulouse, Toulouse, France, Mar 2019

Derived intersections and their interactions with deformation theory, Leiden, Netherlands, Mar 2019

Algebraic formulation of 3D Graphic Statics, MPI-INF and MPI-MiS joint workshop on Theoretical Computer Science and Algebraic Geometry, Saarbruecken, Germany, Jan 2019

Structure of shifted symplectic quantizations in positive characteristics, Rényi Institute, Budapest, Hungary, Jan 2019

Primes over infinity, Discrete Mathematics Seminar, University of British Columbia, Vancouver, Canada, Nov 2017

Derived intersections over the Hochschild cochain complex, Algebra and Topology Seminar, University of Copenhagen, Copenhagen, Denmark, Jan 2017

Derived intersections and applications, Geometric structures seminar, University of Toronto, Toronto, Canada, Nov 2016

Derived intersections over the Hochschild cochain complex, Geometry and Topology Seminar, Western University, London, Canada, Nov 2016

Derived intersections over the Hochschild cochain complex, I-70, Algebraic Geometry Symposium, University of Missouri-Columbia, Columbia, MO, Nov 2016

Derived intersections over the Hochschild cochain complex, University of Pennsylvania Deformation Theory Seminar, Philadelphia, PA, Oct 2016

Hodge theorems via derived intersections, Algebraic Geometry Seminar, Temple University, Philadelphia, PA, Apr 2016

Logarithmic Hodge theorem via derived intersections, Algebraic Geometry Seminar, University of Illinois at Chicago, Chicago, IL, Apr 2016

Formality of derived intersections and applications, Lecture series, Summer School on Derived Algebraic Geometry, Pavia, Italy, Sept 2015

(Logarithmic) Hodge decomposition via derived intersections, Alfréd Rényi Institute of Mathematics, Budapest, Hungary, Aug 2015

Logarithmic Hodge theorem and Derived Intersections, Summer Research Institute on Algebraic Geometry, Salt Lake City, UT, July 2015 (poster)

On the number of rich lines in high dimensional real vector spaces, Mid-Atlantic Algebraic Geometry and Combinatorics Workshop, Philadelphia, PA, Apr 2015 (poster)

The Barannikov-Kontsevich theorem from a derived algebraic geometry point of view, Rice University Algebraic Geometry Seminar, Houston, TX, Nov 2014

On incidence problems in 3-space, University of Pennsylvania Galois Seminar, Philadelphia, PA, Oct 2014

The Barannikov-Kontsevich theorem from a derived algebraic geometry point of view, University of Pennsylvania Deformation Theory Seminar, Philadelphia, PA, Oct 2014

Hochschild Cohomology in Algebraic Geometry, Algebraic Geometry in Seattle 2014, Seattle, WA, Aug 2014

Kekeya problem over non-archimedean local rings, Algebraic Techniques for Combinatorial and Computational Geometry, IPAM, Los Angeles, CA, May 2014

Twisted derived intersections and twisted de Rham complexes, Midwest Algebraic Geometry Graduate Conference, Chicago, IL, Feb 2014

Twisted derived intersections and twisted de Rham complexes, Northwestern Topology Seminar, Evanston, IL, Jan 2014

Twisted derived intersections and twisted de Rham complexes, University of Michigan Algebraic Geometry Seminar, Ann Arbor, MI, Jan 2014

Hodge Theory and Derived Intersection, Géométrie Algébrique en Liberté, Stockholm, Sweden, June 2013 (poster)

Hodge theorem via derived self intersection, Recent Advances in Algebraic Geometry, Ann Arbor, MI, May 2013 (poster)

Hodge theorem via derived self intersection, Midwest Algebraic Geometry Graduate Conference, Madison, WI, Nov 2012

Kekeya sets over non-archimedean local rings, Graduate Student Combinatorics Conference, Urbana, IL, April 2012

WORKING
EXPERIENCE

Instructor at Leiden University, 2019–
Differentiable Manifolds 1, 2019 Fall, 2020 Fall, 2021 Fall, 2022 Fall
Representation Theory, 2020 Spring
Algebraic Geometry, Mastermath, 2021 Fall, 2022 Fall

Instructor at University of Copenhagen, 2017–2019
Algebra III (one semester)
Elliptic Curves (one semester)
Categories and Topology (one semester)

Instructor at University of Pennsylvania, 2014–2017
Calculus (three semesters)
Proof-learning course in Algebra (one semester)
Undergraduate Research Seminar (one semester)
Ordinary Differential Equations (two summers)
Modern Algebra (three semesters)
Graduate Level Algebra (one semester)

Instructor at IAR Summer Program, Shanghai, Fudan University, July 2017, July 2018 and July 2019

4 week program for high school students (2017 and 2018)

2 week program for high school students (2019)

Research Assistantship at UW-Madison, 2010-2014

for Jordan S. Ellenberg (two semesters)

for Andrei Căldăraru (three summers and one semester)

Teaching Assistantship at UW-Madison, 2009-2013

two preparation classes for the Algebra Qualifying Exam

four semesters in Calculus

two semesters in Introductory Geometry

Grading at UW-Madison, 2010-2014

Talent Search (for high school students)

Graduate Ring Theory

Undergraduate Probability Theory

Teaching Assistantship at Eötvös Loránd University (ELTE), 2007–2008

three semesters in Undergraduate Linear Algebra

one semester in Undergraduate Number Theory course

SERVICE

Study advisor, 2022-

PhD students

Francesca Leonardi, 2021-

Jesse Vogel, 2020-

Salma Mozaffari (co-advisor, ETH Zurich), graduated 2021

Master students

Levi Kegel, 2022

Dean Wardell, 2022

Sam Melief, 2021

Jupeng Chen, 2020

Maël Denys, 2020

Giacomo Negrisola, 2020

Jesse Vogel, 2020

Jay Reegan, 2017

Member of

Educational Committee, 2022-

International Association for Shell and Spatial Structures, 2021-

Active-based learning Seminar, 2014-2016

Undergraduate Committee, 2014

TA Training Committee, 2014-2016

TA Recruitment Committee, 2015-2016

(Co-)Organizer for

Non-Commutative Geometry Seminar, Leiden University, 2020-

Algebra, Geometry and Number Theory Seminar, Leiden University, 2020-

Intercity Geometry Seminar, Netherlands, 2020

Algebra and Topology Seminar, University of Copenhagen, 2019

Higher K-theory Seminar, 2015-2016
AGNES, 2014 (responsible for the poster session)
Homological Methods in Algebraic Geometry, 2014
Midwest Number Theory Graduate Conference, 2011
Midwest Algebraic Geometry Graduate Conference, 2010

Organized Training Camps for the IMC (International Mathematics Competition for Undergraduate Students) (2008, 2007)

COMPETITIONS IMC (International Mathematics Competition for Undergraduate Students)
 2008 - Second Prize; First Place in team competition
 2007 - Second Prize; First Place in team competition

HONORS AND BKO, Teaching Qualification, 2022
AWARDS

Horizon 2020, Seal of Excellence, 2018

EUopStart Grant, 2017

Simons Travel Grant, 2015-2017

Departmental Teaching Award, 2016, Fall

Departmental Teaching Award, 2015, Fall

Departmental Teaching Award, 2015, Spring

Excellence in Mathematical Research Award, 2013

Mathematics Graduate Teaching Award, 2013

Scholarship of the Republic of Hungary, 2008

Excellent Student of the Faculty, 2007

SKILLS Languages
 Hungarian - native
 English - fluent
 French - intermediate
 Dutch - intermediate
 German - beginner
 Danish - beginner

Computer skills
 TeX, Python, Maple, Magma, Sage, Macaulay2, Singular
