

# Kalina Mincheva

## Curriculum Vitae

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Google Scholar page

### Academic Positions

July 2020 - **Assistant Professor**, *Tulane University*.

Present

Spring 2018 **Member**, *Institute Mittag-Leffler*, Program on Tropical Geometry, Amoebas and Polytopes.

July 2016 - **Gibbs Assistant Professor**, *Yale University*.

June 2020

### Education

May 2016 **Ph.D. in Mathematics**, *Johns Hopkins University*, Baltimore, MD, USA.

Thesis title: Tropical geometry and idempotent semirings.

Thesis Advisor: Caterina Consani

June 2010 **M.Sc. in Mathematics**, *Central European University*, Budapest, Hungary.

Thesis title: Automorphisms of non-abelian p-groups.

Thesis Advisor: Pál Hegedűs

May 2008 **B.A. Summa Cum Laude**, *American University in Bulgaria*, Blagoevgrad, Bulgaria.

Computer Science (major), Mathematics (major)

Senior project title: Gröbner Basis Cryptosystems

### Publications

in prep Friedenber N., Mincheva K., Tropical Adic Spaces

in prep Joó D. and Mincheva K., Applications of congruence methods to tropical geometry

2020 Jun J., Mincheva K., and Tolliver J., Vector Bundles on Tropical Toric Schemes - arXiv:2009.03030

2020 Jun J., Mincheva K., and Rowen L., Homology of systemic modules, accepted to Manuscripta Mathematica.

2019 Jun J., Mincheva K., and Rowen L., Projective systemic modules, accepted to Journal of Pure and Applied Algebra.

2018 Jun J., Mincheva K., and Tolliver J., Picard groups for tropical toric varieties, Manuscripta Mathematica .

2018 Joó D. and Mincheva K., On the dimensions of polynomial semirings, J. of Algebra.

2017 Bossinger L., Lamboglia S., Mincheva K., and Mohammadi F., Computing toric degenerations of flag varieties, Combinatorial Algebraic Geometry. Fields Institute Communications.

2017 Joó D. and Mincheva K., Prime congruences of idempotent semirings and a Nullstellensatz for tropical polynomials, Sel. Math. New Ser.

## Theses

- 2016 Mincheva K., Prime congruences and tropical geometry, eprint, JHU Electronic Theses and Dissertations Collection, PhD thesis.
- 2010 Mincheva K., Automorphisms of non-Abelian  $p$ -groups, eprint, CEU Electronic Theses and Dissertations Collection, MSc thesis.

## Awards, Honors and Fellowships

- 2022 NSF Conference grant, PI - organize Math For All Conference
- 2021 BoR Targeted Enhancement Grant, Co-PI
- 2019 NSF Conference grant, Co-PI - organize JAMI 2019 Conference
- 2018 AWM Mentoring grant to spend a month at Warwick University, mentor Diane Maclagan
- 2018 AMS travel grant to attend ICM 2018
- 2016 Clay Mathematics Institute scholarship to participate in the Apprenticeship weeks at the Fields Institute
- 2016 (declined) INdAM-COFUND-2012 Fellowships in Mathematics and/or Applications for experienced researchers co-funded by Marie Curie actions
- 2016 William Kelso Morrill Award for Excellence in Mathematics
- 2016 AMS travel grant to attend AMS Sectional Meetings
- 2016 Member of the Phi Beta Kappa Society, JHU

## Seminars/Conferences (co)-organized

- Spring 2022 Math For All in NOLA conference
- Fall 2021 - Co-organizing the Algebraic Geometry and Geometric Topology seminar at Tulane present
- Fall 2020 - Co-organizing the Algebra and Combinatorics seminar at Tulane present
- Spring 2020 AMS Sectional Meetings, Special Session: Tropical Geometry,  $\mathbb{F}_1$ -connections and Matroids
- Fall 2019 JAMI - Japan-U.S. Mathematics Institute conference at Johns Hopkins University
- Summer 2019 SIAM Conference on Applied Algebraic Geometry - Mini-symposium: Computational tropical geometry
- Fall 2018 BATMOBYLE - Bi-annual Algebraic and Tropical Meetings of Brown and Yale
- Fall 2017 BATMOBYLE - Bi-annual Algebraic and Tropical Meetings of Brown and Yale
- Fall 2017 - Co-organizing the algebraic and tropical geometry seminar at Yale
- Spring 2020

## Invited Talks and Posters

- Nov 2021 SIAM minisymposium: Algorithmic Algebraic Geometry
- October 2021 AUBG 30th Anniversary Multidisciplinary Academic Conference

August 2021 SIAM minisymposium: Foundations of Tropical Geometry  
 June 2020 Tropical Geometry in Frankfurt (TGiF) Seminar  
 March 2020 AMS Sectional Meetings: Moduli of curves, Hilbert schemes, and tropical geometry  
 (cancelled due to COVID-19)  
 Feb 2020 Utah State University - Colloquium  
 Feb 2020 George Washington University - Colloquium  
 January 2020 Tulane University - Colloquium  
 January 2020 McMaster University - Algebra Seminar  
 January 2020 Auburn University - Algebra seminar  
 October 2019 JAMI: Riemann-Roch in characteristic one and related topics  
 October 2019 University of Kentucky - Algebra Seminar  
 August 2019 Banff workshop - Mutations: Mirror Symmetry, Deformations, and Combinatorics  
 May 2019 Non-Archimedean and Tropical Geometry, Regensburg  
 May 2019 BATMOBYLE@Amherst  
 April 2019 Harvard - Algebraic Geometry Seminar  
 April 2019 Georgia Tech - Algebraic Geometry Seminar  
 March 2019 Johns Hopkins University - Algebraic Geometry Seminar  
 October 2018 Brown University - Algebraic Geometry Seminar  
 August 2018 Tropical geometry and moduli spaces, ICM satellite  
 June 2018 TU Berlin - Research Seminar  
 May 2018 York University - Algebra seminar  
 May 2018 Tropical Mathematics and its Applications Meeting, Warwick  
 April 2018 Workshop on Tropical varieties and amoebas in higher dimension  
 January 2018 Workshop on Tropical algebra and applications, IML  
 August 2017 Toric Degenerations Focused Research Workshop in Bristol  
 April 2017 University of Utah - Algebraic Geometry Seminar  
 April 2017 AIM Workshop - Foundations of tropical schemes  
 April 2017 Noncommutative Geometry: Number Theory (part of Alain Connes' 70th birthday  
 celebration)  
 March 2017 Yale University - Algebraic Geometry Seminar  
 March 2016 AMS Sectional Meetings, AMS Special Session on Interactions Between Algebraic  
 and Tropical Geometry  
 January 2016 Joint Math Meetings, AMS Session on Algebraic Geometry  
 Nov 2015 George Mason University - Combinatorics, Algebra and Geometry Seminar  
 October 2015 University of Pennsylvania - Algebra seminar  
 October 2015 Binghamton University, SUNY - Algebra seminar  
 May 2015 Aspects of Algebraic Geometry - Program for Women and Mathematics, IAS  
 April 2015 Student Tropical Algebraic Geometry Symposium 2015  
 March 2015 Number Theory Seminar at Johns Hopkins University

## Macaulay2 Workshops

- June 2020 Macaulay2 Workshop, Warwick - group leader
- June 2018 Macaulay2 Workshop, Leipzig

## Programs Attended

- August 2021 Collaborate@ICERM, Tropical degree two del Pezzo surfaces and their 56 lines
- July 2020 VIRTUAL Workshop Women in Algebraic Geometry, ICERM
- March 2019 Non-Archimedean Geometry and Applications workshop, Oberwolfach
- August 2016 Apprenticeship weeks, Fields Institute
- June 2015 Non-commutative Geometry workshop, Oberwolfach
- May 2015 Aspects of Algebraic Geometry - Program for Women and Mathematics, IAS
- June 2012 MSRI Summer School - Non-commutative algebraic geometry

## Teaching

### Instructor - Tulane University

- Fall 2021 Tropical Geometry - Graduate Course
- Spring 2021 Linear Algebra
- Fall 2020 Calculus II

### Instructor - Yale University

- Spring 2020 Modern Algebra II - Graduate course
- Fall 2019 Linear Algebra and Matrix Theory
- Fall 2019 Single Variable Calculus I
- Spring 2019 Modern Algebra II - Graduate course
- Fall 2018 Introduction to Algebraic Geometry - Graduate course (cross-listed)
- Fall 2018 Linear Algebra and Matrix Theory
- Fall 2017 Tropical Scheme Theory - Graduate course
- Spring 2017 Tropical Geometry - Graduate course
- Fall 2016 Single Variable Calculus II

### Instructor - Johns Hopkins University

- Fall 2014 Introduction to Calculus
- Summer 2013 On-line Linear Algebra - co-instructor

### Head Graduate Teaching Assistant

- 2010 - 2016 Linear Algebra, Calculus III, Calculus I

### Graduate Teaching Assistant

- 2010 - 2016 Linear Algebra, Calculus I, Calculus II, Calculus III, Honors Linear Algebra, Abstract Algebra I

### Exam preparation

- Fall 2015 Preparing problem sets for the PILOT learning - a peer-led-team learning program

Spring 2012 Created and graded the JHU Future scholars exam

## Teaching Development Workshops

2020 Tulane Center for Engaged Learning and Teaching (CELT) training - 5-week teaching training in Summer 2020 with focus on online and HyFlex teaching.

2014 Johns Hopkins Teaching Academy - One year intensive program (3 phases) designed to provide an overview and foundation for new methods in teaching and give the opportunity for hands-on in introduction to college level teaching.

## Service

Spring 2021 Panelist at the Math for All conference at Tulane.

Spring 2021 Panelist at the Women in STEM virtual Town Hall meeting at Tulane.

Fall 2020 - Member of the "Inclusivity in Math Task Force" group in the Tulane Math Department, working towards a more inclusive and welcoming mathematics community.

Fall 2018 - Co-organizer of Intersections, Diversity seminar in Math at Yale  
Spring 2020

Fall 2018 Mentor for female graduate students in STEM at Yale (WISAY)

Fall 2017 - Faculty sponsor for the AWM student chapter  
Spring 2020

## Extracurricular activities and outreach

Fall 2018 Yale Dimensions (AWM chapter) - discussion

Fall 2017 Yale math club - talk

Fall 2013 Organizing the JHU Math TA lunches - a place where math TAs can share and discuss their experience in the classroom

## Memberships

AWM Association for Women in Mathematics

SIAM Society for Industrial and Applied Mathematics