

# Aleksandra Sobieska

UNIVERSITY OF WISCONSIN - MADISON · DEPARTMENT OF MATHEMATICS

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## Employment

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### Van Vleck Visiting Assistant Professor

UNIVERSITY OF WISCONSIN - MADISON

Madison, WI

September 2020 - present

## Education

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### Ph.D. in Mathematics

TEXAS A&M UNIVERSITY

Advisor: Laura Felicia Matusevich

College Station, TX

August 2020

### B.S. in Mathematics & B.A. in German Language

KENT STATE UNIVERSITY

Kent, OH

May 2014

## Publications

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### Subcomplexes of Certain Free Resolutions

MAYA BANKS AND ALEKSANDRA SOBIESKA.

Submitted.

[arXiv:2112.15137](https://arxiv.org/abs/2112.15137)

### Identifiability of Linear Compartmental Models: The Impact of Removing Leaks and Edges

PATRICK CHAN, KATHERINE JOHNSTON, ANNE SHIU, ALEKSANDRA SOBIESKA, AND CLARE SPINNER.

Submitted.

[arXiv:2102.04417](https://arxiv.org/abs/2102.04417)

### Toward Free Resolutions Over Scrolls

LAURA FELICIA MATUSEVICH AND ALEKSANDRA SOBIESKA.

*Proceedings of the American Mathematical Society* 148 (2020), pp. 5071-5086.

[arXiv:1903.03687](https://arxiv.org/abs/1903.03687)

DOI

### Counterexamples for Cohen–Macaulayness of Lattice Ideals

LAURA FELICIA MATUSEVICH AND ALEKSANDRA SOBIESKA.

*Communications in Algebra*, Vol. 47: Issue 6 (2019), pp. 2494 - 2502.

[arXiv:1804.03647](https://arxiv.org/abs/1804.03647)

DOI

### On transformations of A-hypergeometric functions

JENS FORSGÅRD, LAURA FELICIA MATUSEVICH, AND ALEKSANDRA SOBIESKA.

*Funkcialaj Ekvacioj*, Vol. 62: Issue 3(2019), pp. 319-336.

[arXiv:1703.03036](https://arxiv.org/abs/1703.03036)

DOI

### Splitting techniques and Betti numbers of secant powers

REZA AKHTAR, BRITTANY BURNS, HALEY DOHRMANN, HANNAH HOGANSON, OLA SOBIESKA, AND ZEROTTI WOODS.

*Involve*, Vol. 9 (2016), pp. 737 - 750.

DOI

## Awards & Honors

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2019 **Dr. Joseph Newton Graduate Student Service Award**, TAMU College of Science

2018 **L.F. Guseman Prize**, TAMU Dept. of Mathematics

2014 - 2018 **Texas A&M University Graduate Merit Fellowship**, TAMU

2017 **Houston A&M Mother's Club Outstanding Teaching Asst. Award**, TAMU Dept. of Mathematics

2014 **Carl M. Percy, Jr. '55/Heep Endowed Graduate Fellowship in Mathematics**, TAMU Dept. of Mathematics

## Grants

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### NSF Conference Grant

JOINTLY WITH LAURA MATUSEVICH, PRIYANGA GANESAN, NIDA OBATAKE, AND ELISE WALKER.

In support of the Texas Women in Mathematics Symposium (TWIMS) 2020

[NSF DMS-1937317](https://www.nsf.gov/awardsearch/showAward?AWDNO=1937317)

\$8000

## College of Science Diversity and Equity Grant

JOINTLY WITH LAURA MATUSEVICH, PRIYANGA GANESAN, NIDA OBATAKE, AND ELISE WALKER.

In support of TWIMS 2020

TAMU CoS

\$2000

## MAA/Tensor Women and Mathematics Program

JOINTLY WITH LAURA MATUSEVICH, PRIYANGA GANESAN, NIDA OBATAKE, AND ELISE WALKER.

In support of TWIMS 2020

MAA/Tensor Foundation

\$6000

## College of Science Diversity and Equity Grant

JOINTLY WITH LAURA MATUSEVICH, CHANGNINGPHAABI NAMOIJAM, NIDA OBATAKE, AND ELISE WALKER.

In support of the TAMU-AWM Student Chapter Peer Mentoring Program for Mathematics Graduate Students

TAMU CoS

\$1960

## Presentations

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### CONFERENCE TALKS

June 2022	<b>AWM Special Session on Combinatorial and Homological Methods in Commutative Algebra</b>	IMA & Univ. of Minnesota
May 2022	<b>M2 @ CSU</b>	Cleveland State Univ.
May 2022	<b>GradMoCCA</b>	Univ. of Minnesota
Apr 2022	<b>CA+</b>	Iowa State Univ.
Oct 2021	<b>AMS Special Session on Homological Methods in Commutative Algebra</b>	Creighton Univ. (virtual)
May 2021	<b>AMS Special Session on Women in Comm. Alg. - 100 years of Idealtheorie in Ringbereichen</b>	San Francisco State Univ. (virtual)
May 2021	<b>AMS Special Session on Commutative Algebra</b>	San Francisco State Univ. (virtual)
Sep 2020	<b>AMS Special Session on Free Resolutions, Combinatorics, and Geometry</b>	Univ. of Texas - El Paso (virtual)
Apr 2020	<b>Upcoming Researchers in Commutative Algebra</b>	Univ. of Nebraska - Lincoln
Jan 2020	<b>AMS Special Session on Commutative Algebra</b>	JMM @ Denver CO
Oct 2020	<b>Graduate Algebra Symposium</b>	Texas A&M Univ.
Sep 2020	<b>AMS Contributed Session on Algebra, Geometry, and Lie Theory</b>	Univ. of Wisconsin - Madison
Nov 2018	<b>Texas Women in Math Symposium</b>	University of Houston
Aug 2013	<b>PME Student Paper Session</b>	Mathfest @ Hartford CT

### EXTERNAL SEMINAR TALKS

Apr 2022	<b>Commutative Algebra Seminar</b>	Univ. of Minnesota
Oct 2020	<b>Algebra and Discrete Mathematics Seminar</b>	Clemson University
May 2020	<b>Commutative Algebra Seminar</b>	Univ. of California - Riverside
Apr 2020	<b>Commutative Algebra Seminar</b>	Univ. of Nebraska - Lincoln
Apr 2019	<b>Algebra and Algebraic Geometry Seminar</b>	Univ. of Wisconsin - Madison
Apr 2019	<b>Commutative Algebra Seminar</b>	Purdue Univ.
Mar 2019	<b>Commutative Algebra Seminar</b>	Univ. of Minnesota

### POSTER PRESENTATIONS

Mar 2020	<b>Southwest Local Algebra Meeting</b>	Tulane Univ.
June 2019	<b>Summer School on Geometric and Algebraic Combinatorics</b>	Sorbonne Univ.
Apr 2019	<b>Graduate Workshop in Commutative Algebra for Women &amp; Mathematicians of Other Minority Genders</b>	Univ. of Minnesota
Apr 2019	<b>AWM Research Symposium</b>	Rice Univ.
Feb 2019	<b>Southwest Local Algebra Meeting</b>	Univ. of Texas - El Paso
Nov 2018	<b>Texas Women in Math Symposium</b>	Univ. of Houston
Jun 2018	<b>NSF/CBMS Regional Conference: Applications of Polynomial Systems</b>	Texas Christian University
Apr 2018	<b>Texas Algebraic Geometry Symposium</b>	Texas A&M Univ.
Mar 2018	<b>Singularities, Toric Geometry, and Differential Equations</b>	TU Chemnitz
Feb 2018	<b>Southwest Local Algebra Meeting</b>	Univ. of Arkansas

Apr 2014 **Choose Ohio First Research Poster Session**

Cleveland, Ohio

Jan 2014 **MAA Student Poster Session**

JMM @ Baltimore MD

## OUTREACH & OTHER

Feb 2022 **Mathematical Auction** Math Circle

Univ. of Wisconsin - Madison

Apr 2021 **Pancake Problem** Math Circle

Univ. of Wisconsin - Madison

Feb 2020 **Pancake Problem** Math Circle

Texas A&M Univ.

Nov 2019 **Mathematical Auction** Math Circle

Texas A&M Univ.

Sep 2016 -  
2019 **Outreach Opportunities** First Year Graduate Student Seminar

Texas A&M Univ.

Mar 2018 **What is a Complete Intersection?** AMS Student Chapter Gathering in Graduate Expository  
Mathematics

Texas A&M Univ.

Sep 2016 **Even and Odd Numbers** Math Circle

Texas A&M Univ.

Mar 2016 **Weighings and Counterfeit Coins** Math Circle

Texas A&M Univ.

## Teaching & Mentoring

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### UNIVERSITY OF WISCONSIN - MADISON

**Algebraic Theory of Differential and Difference Equations, Model Theory and their Applications**

July 2022

TA

**Elementary Matrix and Linear Algebra (MATH 340)**

Spring 2022

INSTRUCTOR

**Graduate Student Writing Group**

Fall 2020, Spring 2021/2022

ORGANIZER

**Graduate Student Reading Group on Toric Varieties**

Spring 2021

CO-ORGANIZER

Homepage

**Introduction to Discrete Mathematics (CS-MATH 240)**

Spring 2021

INSTRUCTOR

**Introduction to Probability (MATH 431)**

Fall 2020

INSTRUCTOR

### TEXAS A&M UNIVERSITY

**Explorations in Mathematics (MATH 167)**

Fall 2019, Spring 2020

INSTRUCTOR

Homepage

**Math Concepts – Calculus (MATH 131)**

Fall 2017

INSTRUCTOR

Homepage

**TAMU Summer Research Experience for Undergraduates**

Summer 2020/2017/2016

ASSISTANT REU INSTRUCTOR

Assisted in groups on Algebraic Methods in Computation Biology, Topological Quantum Computing, and Probability and Algebra.

**Directed Reading Program Mentor**

Fall 2019

GRADUATE MENTOR

Homepage

**Academy for Future Faculty (AFF)**

Spring 2019

FELLOW

Homepage

**AWM Student Chapter Peer Mentoring Program**

2017- 2020

GRADUATE MENTOR

Homepage

**Engineering Calculus I**

Summer 2020

PYTHON LAB ASSIGNMENT CREATION

**Engineering Calculus I/II**

Spring 2019/2018/2016 ; Fall  
2016/2015

TEACHING ASSISTANT

Homepage

## Service

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Apr 2022	<b>AMS Special Session on Combinatorial Algebra and Geometry</b> , Co-Organizer	<i>Purdue Univ.</i>
Feb 2020	<b>Texas Women in Mathematics Symposium</b> , Co-Organizer	<i>Texas A&amp;M Univ.</i>
2017 - 2019	<b>Association for Women in Mathematics Graduate Student Chapter</b> , President	<i>TAMU</i>
2015 - 2019	<b>American Mathematical Society Graduate Student Chapter</b> , Officer	<i>TAMU</i>
2018, 2019	<b>Combinatexas</b> , Session Moderator	<i>TAMU</i>
2018, 2019	<b>AMS Gathering in Graduate Expository Mathematics</b> , Co-Organizer	<i>TAMU</i>
2015 - 2017	<b>Women in Math Mentoring Lunches</b> , Co-Organizer	<i>TAMU</i>
Fall 2016	<b>Student Working Seminar in Algebra &amp; Geometry</b> , Co-Organizer	<i>TAMU</i>

## Outreach

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Apr 2021	<b>Math Circle</b> , Speaker	<i>UW-Madison</i>
2014 - 2020	<b>Math Circle</b> , Volunteer	<i>TAMU</i>
2016 - 2018	<b>Math Circle</b> , Volunteer Coordinator	<i>TAMU</i>
'20, '18, '17	<b>STEMfest - STEM Fair for Girl Scouts of Central Texas</b> , Volunteer	<i>TAMU</i>
Apr 2017	<b>Physics and Engineering Festival</b> , Volunteer	<i>TAMU</i>
Feb 2017	<b>Math &amp; Stat Fair</b> , Volunteer	<i>TAMU</i>
Mar 2015	<b>Pi Day of the Century</b> , Volunteer	<i>TAMU</i>