


# EMANUELA MARANGONE

*E-mail* [emanuela.marangone@umanitoba.ca](mailto:emanuela.marangone@umanitoba.ca)  
*Address* Department of Mathematics, University of Manitoba,  
Winnipeg, Manitoba, Canada  
*Orcid*  0000-0003-4374-0714  
*Website* <https://emanuelamarangone.wixsite.com/marangone>

## RESEARCH INTERESTS

My research interests lie in Commutative Algebra and Algebraic Geometry. In particular, topics related to the Weak and Strong Lefschetz Properties. I am also interested in questions regarding the cohomology of line bundles over flag varieties in positive characteristics and related questions.

## EMPLOYMENT

*University of Manitoba* 09/24-present PIMS Postdoctoral Fellow  
Sponsor: Professor Susan Cooper [Susan.Cooper@umanitoba.ca](mailto:Susan.Cooper@umanitoba.ca)  
*University of Notre Dame* Summer 2024 Postdoctoral Teaching Scholar  
Supervisor: Professor Juan Migliore [Juan.C.Migliore.1@nd.edu](mailto:Juan.C.Migliore.1@nd.edu)

## VISITING

*Fields Institute* Spring 2025 Visiting Researcher  
Thematic Program in Commutative Algebra and Applications

## EDUCATION

*University of Notre Dame* 05/18/2024 Ph.D. in Mathematics  
Advisor: Professor Juan Migliore  
*University of Udine* 03/13/2019 Master in Mathematics  
Advisors: Professor Pietro De Poi and Professor Juan Migliore  
Grade: 110 cum Laude  
*University of Udine* 10/19/2016 Bachelor of Science in Mathematics  
Grade: 110 cum Laude

## PAPERS

*Preprint* 2025 Computing the cohomology of line bundles on the incidence correspondence and related invariants  
with Claudiu Raicu, Ethan Reed, and Annet Kyomuhangi  
<https://arxiv.org/pdf/2503.17522>  
*Preprint* 2024 Cohomology on the incidence correspondence and related questions  
with Claudiu Raicu, Ethan Reed, and Annet Kyomuhangi  
<https://arxiv.org/pdf/2411.13450>  
*Preprint* 2024 The non-Lefschetz locus of conics  
<https://arxiv.org/pdf/2404.16238>  
*Journal of Algebra* 2023 The non-Lefschetz locus of vector bundles of rank 2 on  $\mathbb{P}^2$   
<https://www.sciencedirect.com/science/article/abs/pii/S0021869323001898>  
*Journal of Algebra* 2023 Some notes and corrections of the paper “The Non-Lefschetz locus”  
<https://www.sciencedirect.com/science/article/abs/pii/S0021869323002284>

## PARERS IN PREPARATION

<i>In Preparation</i>	2025+	Geometric vertex decomposable star configurations with Susan M. Cooper, Elena Maria Guardo, and Adam Van Tuyl
<i>In Preparation</i>	2025+	Weighted Veronese Rings with Alexandra Seceleanu, Thai Nguyen, Thiago de Holleben, Bek Chase, Luca Fiorindo, Srishti Singh, and Sankhaneel Bisui

## SOFTWARE

<i>M2 Package</i>	2025	<a href="#">IncidenceCorrespondenceCohomology</a> Package for the computer algebra system Macaulay2 with Claudiu Raicu, Ethan Reed, and Annet Kyomuhangi
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## INVITED TALKS

<i>AMS Spring Western Sectional Meeting</i>	05/03/2025	AMS meeting at California Polytechnic State University, San Luis Obispo, California. Special Session on "Special Session on Syzygies and Free Resolutions" Title: <i>Cohomology of line bundles on the incidence correspondence</i>
<i>KTH, Sweden (Online)</i>	04/15/2025	Problem-solving seminar in commutative algebra Title: <i>Lefschetz Properties for Artinian Complete Intersections</i>
<i>University of Notre Dame</i>	03/17/2025	Algebraic Geometry and Commutative Algebra Seminar Title: <i>Cohomology of line bundles on the incidence correspondence</i>
<i>AMS Fall Central Sectional Meeting</i>	09/14/2024	AMS meeting at University of Texas, San Antonio Special Session on "Commutative Algebra and connections to combinatorics" Title: <i>Lefschetz Properties and non-Lefschetz locus</i>
<i>AMS Spring Central Sectional Meeting</i>	04/21/2024	AMS meeting at University of Wisconsin-Milwaukee Special Session on "Ramification in Algebraic and Arithmetic Geometry" Title: <i>Lefschetz Properties and non-Lefschetz locus</i>
<i>AMS Fall Central Sectional Meeting</i>	10/07/2023	AMS meeting in Omaha Special Session on "Varieties with Unexpected Hypersurfaces, Geproci Sets and their Interactions" Title: <i>The non-Lefschetz locus for lines and for conics</i>
<i>University of Illinois Chicago</i>	09/18/2023	UIC Algebraic Geometry Seminar Title: <i>The non-Lefschetz locus, jumping lines and conics</i>
<i>University of Nebraska-Lincoln</i>	05/07/2023	URiCA 2023 Annual conference for upcoming researchers in Commutative Algebra Title: <i>Non-Lefschetz locus for first cohomology module of rank 2 vector bundles on <math>\mathbb{P}^2</math></i>
<i>Joint Mathematics Meetings, Boston</i>	01/06/2023	JMM 2023 Special session on "The combinatorics and geometry of Jordan type and Lefschetz properties" Title: <i>The non-Lefschetz locus for vector bundles of rank 2 on <math>\mathbb{P}^2</math></i>
<i>University of Udine</i>	06/14/2022	Algebraic Geometry Seminar Title: <i>Non-Lefschetz locus per fibrati vettoriali di rango 2 su <math>\mathbb{P}^2</math></i>

## CONTRIBUTED TALKS

<i>University of Calgary</i>	04/28/2025	2025 PIMS Postdoctoral Summit Title: <i>From the Lefschetz property to the Incidence Correspondence</i>
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Fields Institute, Toronto	03/11/2025	Women in Commutative Algebra Conference Title: <i>Lefschetz Properties for Artinian Complete Intersections</i>
Fields Institute, Toronto	02/27/2025	Commutative Algebra and Applications Seminar Title: <i>Cohomology of line bundles on the incidence correspondence</i>
Pacific Institute for the Mathematical Sciences (Online)	01/29/2025	PIMS Emergent Research Seminar Title: <i>Lefschetz Properties for Artinian Complete Intersections</i>
University of Arizona	05/04/2024	CAAGTUS 2024 Commutative Algebra and Algebraic Geometry Conference in Tucson Title: <i>Lefschetz Properties and non-Lefschetz locus</i>
Arizona State University	11/05/2023	Algebra Days at Arizona State Research event in commutative algebra and related fields Title: <i>The non-Lefschetz locus, jumping lines and conics</i>
Fields Institute, Toronto	05/16/2023	Workshop on Lefschetz Properties Title: <i>The non-Lefschetz locus for lines and for conics</i>
University of Notre Dame	12/07/2021	AGCA Seminar Title: <i>The non-Lefschetz locus for vector bundle of rank 2 on <math>\mathbb{P}^2</math></i>

#### GRANTS AND AWARDS

University of Notre Dame	2024	· The Richard Sady Dissertation Prize <a href="https://math.nd.edu/about/awards/graduate/the-richard-sady-dissertation-prize/">https://math.nd.edu/about/awards/graduate/the-richard-sady-dissertation-prize/</a>
	2024	· AMS Graduate Student Travel Grants (relative to the AMS Section in Milwaukee)
	2024	· Joint Mathematics Meetings Travel Grant (relative to the JMM in San Francisco)
University of Udine	2020	· BCC Bank of Basiliano Merit Prize for master's degree students
	2018	· Recipient of the grant for thesis research aboard, University of Udine
	2017	· BCC Bank of Basiliano Merit Prize for undergraduate students
	2015	· Award "Best Student" in the first year of studies in Mathematics, University of Udine
	2013	· Recipient of the Ardiss scholarship, renewed each year from fall 2013 to spring 2018

#### SEMINARS ORGANIZED

Fields Institute, Toronto	Spring 2025	Commutative Algebra and Applications Seminar Part of the Thematic Program in Commutative Algebra and Applications
University of Notre Dame	Spring 2023	Graduate Student Algebra Seminar
	Spring 2023	Mini-course: Cohen-Macaulay rings, Gorenstein rings, and local cohomology

#### WORKSHOPS AND SUMMER SCHOOLS ATTENDED

BIRS, Banff	10/2025	· Workshop "Notions of Singularity in Different Characteristics"
Università di Genova	07/2025	· CoCoA School 2025
Field Institute, Toronto	05/2025	· "Workshop on the Applications of Commutative Algebra"
Field Institute, Toronto	01/2025	· "Apprenticeship Program in Commutative Algebra"
University of Bielefeld	09/2023	· Workshop "Betti numbers in commutative algebra and equivariant homotopy theory"
Università di Catania	06/2023	· PRAGMATIC 2023 Summer School

UIC, Chicago	04/2023 · Workshop "Syzygies and Regularity"
CIMAT, Guanajuato	06/2022 · PASCA 2022 Summer School

TEACHING

INSTRUCTOR

Holy Cross College	Fall 2022	Linear Algebra	Teaching Linear Algebra to incarcerated students with the Moreau College Initiative, an academic collaboration between Holy Cross College and the University of Notre Dame, in partnership with the Indiana Department of Corrections.
University of Notre Dame	Summer 2024	Linear Algebra and Differential Equations	
	Summer 2023	Linear Algebra and Differential Equations	
	Spring 2022	Calculus II	
	Fall 2021	Calculus A	

TEACHING ASSISTANT

University of Notre Dame	Spring 2024	Calculus II
	Spring 2023	Calculus III
	Fall 2022	Linear Algebra and Differential Equations
	Spring 2021	Linear Algebra and Differential Equations
	Fall 2020	Calculus A
University of Udine	Spring 2018	Undergraduate Algebra (Algebra 1)
	Spring 2018	Linear Algebra (Geometria 1)
	Spring 2017	Undergraduate Algebra (Algebra 1)
	Spring 2017	Linear Algebra (Geometria 1)

LANGUAGES

ENGLISH	Fluent
SPANISH	Conversational
ITALIAN	Native
FRIULAN	Native

October 13, 2025