

# El Mehdi Ainasse

## CURRICULUM VITAE ET STUDIORUM

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### Research Interests

Several Complex Variables, Complex Geometry, Analysis, Partial Differential Equations.

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### Education

Aug. 2015 – Present **SUNY: Stony Brook University** Stony Brook, NY, USA  
Ongoing Doctor of Philosophy in (Pure) Mathematics (Expected 2021).  
◦ Advisor: Dror Varolin, Ph.D.  
December 2016 Master of Arts – Professional Option in (Pure) Mathematics.

Aug. 2012 – May 2015 **Clark University** Worcester, MA, USA  
Bachelor of Arts in Mathematics and Philosophy.  
Cumulative GPA: 4.02/4.00, *Summa Cum Laude, Highest Honors in Mathematics, Outstanding Achievement Award in Mathematics, Phi Beta Kappa.*  
Mathematics Honors Thesis:  
◦ Title: *Distinguished Riemannian Metrics.*  
◦ Advisor: Gideon Maschler, Ph.D.  
◦ Description: Elementary and expository study of Riemannian metrics of particular interest.

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### Research

#### Thesis Project

Nakano-positivity of holomorphic Hilbert bundles and applications.

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### Presentations & Talks

#### Presentations

June 2018 *The Oka-Weil Theorem* – MSRI Summer Graduate School: **The  $\bar{\partial}$ -Problem in the Twenty-First Century.**

#### Internal Departmental Talks

**Spring 2020 Student Differential Geometry Seminar.** Topic: The Inhomogeneous  $\bar{\partial}$ -equation.

March 2020 *Hörmander's Theorem and Its Twisted Versions.*

**Spring 2020 Graduate Student Seminar**

February 2020 *An Introduction to Hörmander's Theorem.*

**Fall 2019 Student Differential Geometry Seminar.** Topic: Spectral theory of the Laplacian on Riemannian Manifolds.

December 2019 *Nodal Sets on Compact Riemannian Manifolds.*

October 2019 *The Heat Kernel.*

**Fall 2019 Analysis Student Seminar.** Topic: Singular Integrals

October 2019 *Singular Integrals and Differential Operators.*

#### Renormalization Seminar

November 2019 *The Renormalization Theory for Barenblatt's Equation.*

#### Category Theory Seminar

March 2018 *Internal Categories via Algebraic Structures.*

#### Thurston 3-Manifolds Reading Seminar.

October 2016 *Horospheres, Horocycles and Hyperbolic Surfaces*

**Spring 2016 Geometric Analysis Reading Seminar**

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## Professional Experience

- June 2016 – Present **The Research Foundation for the State University of New York (RF SUNY)**  
**Research Project Assistant**
- Aug. 2019 – June 2020 Dissertation research under the direction of Dror Varolin, PhD. Topic: Twisted  $\bar{\partial}$ -theorems with  
July 2019  $L^2$  estimates and geometric applications.
- June 2018 – July 2018 Doctoral research under the direction of Dror Varolin, PhD. Topic:  $L^2$  extension theorems.
- July 2017 – August 2017 Doctoral training under the direction of Dror Varolin, PhD. Topic: several complex variables.
- June 2016 – August 2016 Doctoral training under the direction of Marcus Khuri. Topic: Riemannian geometry.

Aug. 2015 – Present **SUNY: Stony Brook University**

### Instructor

- Summer II 2019 Instructor for MAT 342 - Applied Complex Analysis.  
Summer II 2018 Instructor for MAT 123 - Precalculus.  
Summer I 2017 Instructor for MAT 200 - Logic, Language and Proof.  
Summer II 2016 Instructor for MAT 303 - Calculus IV with Applications.

### Teaching Assistant (Recitation Leader and Grader)

- Spring 2019 Teaching Assistant for MAT 126 - Calculus B.  
◦ Head proctor for the midterm exams and the final exam.
- Fall 2018 Teaching Assistant for MAT 132 - Calculus II.  
Spring 2018 Teaching Assistant for MAT 211 - Introduction to Linear Algebra.  
Spring 2018 Teaching Assistant for MAT 303 - Calculus IV with Applications.  
Spring 2017 Teaching Assistant for MAT 125 - Calculus A.  
Fall 2017 Teaching Assistant for MAT 131 - Calculus I.  
Spring 2016 Teaching Assistant for MAT 320 - Introduction to Analysis.  
Fall 2015 Teaching Assistant for MAT 203 - Calculus III with Applications.

### Grader

- Fall 2019 Grader for MAT 200 - Logic, Language and Proof.  
Summer II 2018 Grader for MAT 203 - Calculus III with Applications.  
Summer I 2017 Grader for MAT 126 - Calculus B.  
Fall 2016 Grader for MAT 364/MAT 529 - Topology and Geometry.  
Fall 2016 Grader for MAT 324 - Real Analysis.  
Spring 2016 Grader for MAT 331 - Computer-Assisted Mathematical Problem Solving.

Jan. 2013 – May 2015 **Clark University**

### Teaching Assistant (Tutor and Grader)

- Spring 2015 Teaching Assistant for MATH 131 - Multivariate Calculus.  
Fall 2014 Teaching Assistant for MATH 130 - Linear Algebra.  
Fall 2014 Teaching Assistant for MATH 225 - Modern Algebra.  
Fall 2014 Teaching Assistant for MATH 172 - Introduction to Modern Analysis.  
Fall 2013 Teaching Assistant for MATH 130 - Linear Algebra.

### Tutor

- Spring 2013 – Spring 2014 Tutor for MATH 125 - Honors Calculus II.

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## Honors & Awards

- 2018 – 2019 I-STEM Academic Fellowship Award – The Research Foundation for SUNY (SUNY RF).  
2018 The John W. Milnor Endowed Graduate Fund in Mathematics – SUNY: Stony Brook University
- May 2016 – August 2016 Teaching and Study Fellowship, Mathematics Department – SUNY: Stony Brook University.  
2015 – 2016 Nominated for the Mathematics Department Teaching Award – SUNY: Stony Brook University.
- May 2015 –  $\infty$  Senior Member of *Phi Beta Kappa* – by invitation.  
May 2015 Graduated *Summa Cum Laude* – Clark University.

- May 2015 Highest Honors in Mathematics – Clark University.
- May 2015 Outstanding Achievement in Mathematics Award – Clark University.
- Spring 2015 Dean’s List, Second Honors – Clark University.
- Fall 2012 – Fall 2014 Dean’s List, First Honors – Clark University.
- 2013 – 2014 Participated in the Putnam competition as part of the Clark University team which placed in the top 30% of 430 teams, nationally.
- March 2012 Recipient of the Clark University international merit award.

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## Community Involvement & Service

- 2019 – 2021 **Institute for STEM Education, SUNY: Stony Brook University**
- Fall 2019 I-STEM Fellow and Instructor for the Della Pietra High School Applied Math Program
  - Mini-course on Mathematical Logic: *A Computer-Assisted Immersion into Logic*.
- Summer 2019 I-STEM Fellow and Instructor for the Mathematics Summer Program
  - Mini-course on Applied Logic: *An Introduction to Logic with Puzzles and Mysteries*.
- Spring 2020 **Co-organizer** of the Student Differential Geometry Seminar at SUNY: Stony Brook University
 

Structured the seminar through the selection of topics in complex analytic and differential geometry relating to the inhomogeneous  $\bar{\partial}$  equation and its  $L^2$ -theory.
- Fall 2017 – Spring 2018 **Co-organizer** of the Analysis Student Seminar at SUNY: Stony Brook University
- Fall 2017 – Spring 2018 **Co-organizer** of the Category Theory Seminar at SUNY: Stony Brook University
 

Contributed to the structuring of the seminar through the selection of topics in category theory based on **The Handbook of Categorical Algebra** book series by Francis Borceux.

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## Professional Development Activities

- Aug. 21 - 25 2018 Participated in the **Maryland Analysis and Geometry Atelier**. (Funded.)
- June 11 – 22 2018 Nominated for and participated in the **MSRI Summer Graduate School The  $\bar{\partial}$ -Problem in the Twenty-First Century**. (Funded.)
- Dec. 3 - 4 2016 Attended the **Mini-school on Nonlinear Equations** at the **Harvard CMSA**. (Funded.)
- Oct. 27 - 28 2016 Attended the **Geometric Analysis Conference 2016** at **Rutgers University**.
- June 6 – 17 2016 Participated in the program **Boston City Limits 2016: Summer School on the Geometric Analysis of Waves and Fluids** at **MIT**. (Funded.)
- 2013 – 2015 Member of the Clark University Putnam Competition Preparation Club led by Prof. John Kennison, Ph.D. Participated in the Putnam competition as part of the Clark University team.

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## Linguistic Skills

- French: first language.
- Arabic: first language.
- English: bilingual.
- Spanish: conversational.

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## References

### Research

- Dror Varolin, Ph.D.
- Professor
  - Department of Mathematics
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E-mail: dror@math.stonybrook.edu  
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### Teaching

- David Khan, Ph.D.
- Professor
  - Stony Brook University Institute for STEM Education
  - Phone: +1 (631) 632-9020

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