

# Matthew Niemi

niemiro.dev  
mniemiro@math.harvard.edu

## Education

---

|   |                               |
|---|-------------------------------|
| <b>Harvard University</b><br>PhD student in mathematics                                       | 2024 - Present                |
| <b>University of Illinois Urbana-Champaign</b><br>B.S., <i>summa cum laude</i> in Mathematics | 2020 - 2024<br>GPA: 4.0 / 4.0 |

## Research Experience, Papers

---

|   |                    |
|---|--------------------|
| <b>The University of Chicago Math Research Experience for Undergraduates (REU)</b><br><i>Advisor: Prof. Peter May</i> <ul style="list-style-type: none"><li>Paper in preparation on <i>ambidexterity and semiadditivity</i> in homotopy theory.</li></ul> | June – August 2023 |
| <b>The University of Chicago REU</b><br><i>Advisor: Prof. Peter May</i> <ul style="list-style-type: none"><li>Resulted in 20-page paper <i>The Adams Conjecture and the K-theory of finite fields</i> (joint with Zhong Zhang).</li></ul>                 | June – August 2022 |
| <b>The University of Chicago REU</b><br><i>Advisor: Max Johnson</i> <ul style="list-style-type: none"><li>Resulted in 12-page paper <i>The derived functor approach to sheaf cohomology</i>.</li></ul>  | June – August 2021 |

## Talks, Presentations

---

|  |      |
|--|------|
| <b>Cochains on the circle</b><br><i>Harvard Zygote Seminar</i>   | 2024 |
| <b>THH of spherical cochains and free loop spaces</b><br><i>UIUC Telescope Seminar</i>                                     | 2024 |
| <b>The Adams conjecture and Quillen’s invention of algebraic <math>K</math>-theory</b><br><i>The University of Chicago</i> | 2023 |
| <b>Some recollections from Ravenel’s Orange Book</b><br><i>UIUC Chromatic Seminar</i>                                      | 2023 |
| <b>Computing the homology of general linear groups over finite fields</b><br><i>UIUC Kan Seminar</i>                       | 2023 |
| <b>The cobar construction</b><br><i>UIUC Kan Seminar</i>   | 2023 |
| <b>The Adams conjecture and Quillen’s invention of algebraic <math>K</math>-theory</b><br><i>The University of Chicago</i> | 2022 |
| <b>You could have invented derived functors</b><br><i>The University of Chicago</i>  | 2021 |
| <b>Homotopy, modular forms, and the spectrum <math>Q(\ell)</math></b><br><i>UIUC Undergraduate Research Symposium</i>      | 2021 |

## Service

---

|  |  |
|--|--|
| <b>Harvard/MIT Babytop Seminar</b><br><i>Organizer</i> | Spring 2024<br><i>Harvard University</i>               |
| <b>Condensed Seminar</b><br><i>Organizer, lecturer</i> | June – August 2023<br><i>The University of Chicago</i> |

## Awards & Honors

---

|   |      |
|---|------|
| <b>H. Roy Brahana Prize in Mathematics</b><br>Awarded annually to the UIUC student with “the most exceptional undergraduate math career.” | 2023 |
| <b>Salma Wanna Award</b><br>Awarded annually to a UIUC student “for exceptional performance in mathematics.”                              | 2022 |