SHAMUEL AUYEUNG

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CONTACT INFORMATION

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EDUCATION

Ph.D., Mathematics, Stony Brook University   Auyeung 2017 - May 2023
Advisor: Mark McLean

B.S., Mathematics with honors, Calvin College   September 2012-May 2017
Thesis advisor: Christopher Moseley
B.A., Philosophy with honors, Classical Greek, Calvin College   September 2012-May 2017

RESEARCH

Current interests: symplectic geometry, Lagrangian and fixed-point Floer (co)homology, algebraic singularities, Lie algebras from almost complex geometry, flexibility of affine varieties

Publications and Preprints:

- On the Algebra Generated by $\bar{\mu}, \bar{\partial}, \partial, \mu$. With coathors Jin-Cheng Guu, Jiahao Hu. Submitted. `https://arxiv.org/abs/2208.04890`

- Local Lagrangian Floer Homology of Quasi-Minimally Degenerate Intersections. Submitted. `https://arxiv.org/abs/2109.03679`

- An Algebraic Characterization of Highly Connected 2n-Manifolds. With coauthors Joshua Ruiter, Daiwei Zhang. *Rose-Hulman Undergraduate Mathematics Journal*: Vol. 17 : Iss. 2 , Article 5. `https://scholar.rose-hulman.edu/rhumj/vol17/iss2/5`

- The Krein Matrix and an Interlacing Theorem. With coauthor Eric Yu, *SIAM Undergraduate Research Online Journal* Vol. 7. `https://www.siam.org/publications/siuro/volume-7`

Seminars Participated In:

- Symplectic Geometry, Gauge Theory, and Low-Dimensional Topology Seminar   Fall 2021-2022
    (Co-organizer, 2022)
- Student Symplectic Seminar   Fall 2022
    (Co-organizer)
- Stable Homotopy Theory and Complex-Oriented Cohomologies   Summer 2022
- Floer Homotopy Theory Seminar   Spring 2022
- Western Hemisphere Virtual Symplectic Seminar   Spring 2020-Spring 2022
    (online)
- RTG Student Seminar on Modular Forms   Spring 2020
    (Co-organizer)
- RTG Student Seminar on Homological Mirror Symmetry   Fall 2019
    (Co-organizer)

- Graduate Student Seminar   Fall 2017-current

Academic Talks:

- *Symplectic Cohomology II: Product Structures, Loop Spaces, and Hochschild Homology*
  SBU Student Symplectic Seminar   Fall 2022

- *Symplectic Cohomology I: Reeb Dynamics and Viterbo Functoriality*
  SBU Student Symplectic Seminar   Fall 2022

- *Adjacencies, Multiplicity, and Fixed-Point Floer Cohomology*
  Rutgers University: Woodward Research Group   Fall 2022

- *Milnor Fibrations, Singularities, and Floer Cohomology*
  SBU Research Spotlight   Fall 2022

- *⟨k⟩-Manifolds and Framed Cobordism of Cornered Manifolds*
  SBU Floer Homotopy Theory Seminar   Spring 2022

- *Framed Cobordism and Thom Spectra*
  SBU Floer Homotopy Theory Seminar   Spring 2022

- *Incarnations of McKay Correspondences: Representations and du Val Singularities*
  SBU Graduate Student Seminar   Spring 2022

- *Local Lagrangian Floer Homology of Quasi-Minimally Degenerate Intersections*
  Western Hemisphere Virtual Symplectic Seminar   Fall 2021

- *Twisted Complexes and Split-Generation for Fukaya Categories*
  SBU RTG Seminar on Homological Mirror Symmetry   Fall 2019

- *Morse Homology, Hamiltonian Floer Theory, and Arnold's Conjecture*
  SBU Graduate Student Seminar   Fall 2019

- *The de Rham Groupoid*
  SBU RTG Seminar on Higgs Bundles   Fall 2018

- *An Introduction to Lie Groups*
  Calvin College Math Colloquium   Spring 2017

- *Classification of n-Connected 2n-Manifolds Via Homotopy Theory*
  Calvin College Math Colloquium   Spring 2015

- *An Overview of Zorn's Lemma and its Guises*
  Calvin College Math Colloquium   Spring 2015

- *The Krein Matrix and an Interlacing Theorem*
  Calvin College Math Colloquium   Fall 2013

Educational Talks (I-STEM):

- *Complex Numbers and an Application to a Counting Problem*   Summer 2022
- *Graph Theory and Error-Correcting Codes*   Spring, Summer 2022
- *What is Hamiltonian Mechanics?*   Spring 2022
- *Introduction to Group Theory and its Uses*   Summer 2021
- *The Pigeonhole Principle*   Summer 2019
- *Complex Numbers and Vizualizing Complex Functions*   Summers 2018, 2019, 2021

TEACHING (SBU)

- MAT 122 - Overview of Calculus with Applications   Fall 2022
- MAT 131 - Calculus I   Fall 2021
- MAT 203 - Calculus III with Applications   Fall 2020

- MAT 126 - Calculus II, instructor   Summer 2020
- MAT 122 - Overview of Calculus with Applications   Fall 2019
- MAT 123 - Precalculus   Fall 2019
- MAT 312 - Applied Abstract Algebra, instructor   Summer 2019
- MAT 123 - Precalculus   Spring 2019
- MAT 121 - Calculus I   Fall 2018
- MAT 118 - Mathematical Thinking, instructor   Summer 2018
- MAT 123 - Precalculus   Spring 2018
- MAT 310 - Linear Algebra   Fall 2017

FURTHER EXPERIENCE

- Teacher for I-STEM High School Mathematics Program   Summers 2018-2022
- Math Learning Center Tutor   August 2017 - May 2023
- Mathematics Directed Reading Program Mentor   Spring 2021
- Math, Computer Science, and Philosophy Grader at Calvin College   August 2013 – May 2015
- CSU Microwaves Magnetics Lab Intern   Summer 2012
- CSU Extreme Ultraviolet Laser Lab Intern   Summer 2011

SERVICE AND OUTREACH

- SBU Math Day - Session on Hexaflexagons   October 2022
- Tutor for the Calvin Prison Initiative   June 2015- May 2017
- Tutor for WEB Program for Under-privileged Students   August 2016- May 2017

HONORS AND AWARDS

- Barry M. Goldwater Scholarship   August 2015 - May 2016
- NSF REU Fellowship   Summers 2013-2016
- NSF Scientific Computing Scholarship   August 2012 - May 2017