SHAMUEL AUYEUNG

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CONTACT INFORMATION

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EDUCATION

Ph.D., Mathematics, Stony Brook University — August 2017 - August 2023
Advisor: Mark McLean
Thesis: Local and Fixed-Point Floer (Co)homologies

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, string topology

Publications and Preprints:

- Shamuel Auyeung, Jin-Cheng Guu, and Jiahao Hu, *On the Algebra Generated by $\bar{\mu}, \bar{\partial}, \partial, \mu$. Complex Manifolds* Vol. 10, Iss. 1, (2023). https://www.degruyter.com/document/doi/10.1515/coma-2022-0149/html.
- Shamuel Auyeung, *Local Lagrangian Floer Homology of Quasi-Minimally Degenerate Intersections.* To appear in *Journal of Topology and Analysis.* https://arxiv.org/abs/2109.03679.
- Shamuel Auyeung, Joshua Ruiter, and Daiwei Zhang. *An Algebraic Characterization of Highly Connected 2n-Manifolds. Rose-Hulman Undergraduate Mathematics Journal*: Vol. 17, Iss. 2 , Art. 5. https://scholar.rose-hulman.edu/rhumj/vol17/iss2/5.
- Shamel Auyeung and Eric Yu. *The Krein Matrix and an Interlacing Theorem. 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 (Co-organizer) — Fall 2019
- Graduate Student Seminar — Fall 2017-current

Academic Talks:

- *Models for Eilenberg-MacLane Spaces using Symmetric Products*
  SBU Graduate Student Seminar — Spring 2023
- *Survey of Sheaf Theoretic Approaches to Symplectic/Contact Geometry*
  SBU Student Symplectic Seminar — Fall 2022
- *Oriented Cobordism, Genera, and the Hirzebruch Signature Theorem*
  SBU Student Topology Seminar — Fall 2022
- *Adjacencies, Multiplicity, and Fixed-Point Floer Cohomology*
  University of Iowa Geometry and Topology Seminar — Fall 2022
- *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
- *$\langle k \rangle$-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 132 - Calculus II — Spring 2023
- 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 131 - 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