

STUART YI-THOMAS

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EDUCATION

University of Maryland, College Park

Ph.D. in Physics
supv. Jay Sau
JQI Graduate Fellow

August 2021 - present

William & Mary

B.S. with Honors in Physics, Minor in Mathematics

Thesis: “Topology of the $O(3)$ non-linear sigma model under the gradient flow”, supv. Christopher Monahan
1693/Stamps Scholar
Overall GPA: 3.96/4.00
Major GPA: 3.95, Minor GPA: 4.00

August 2017 - May 2021

Winter Park High School

International Baccalaureate Diploma
IB Points: 40
Overall GPA: 4.00/4.00

August 2013 - May 2017

PUBLICATIONS

“Quantum hall transformer in a quantum point contact over the full range of transmission”

SYT, Jay D Sau
arXiv preprint arXiv:2406.17778 — 2024

“Comparing numerical methods for hydrodynamics in a 1D lattice model”

SYT, Brayden Ware, Jay D Sau, Christopher David White
Physical Review B **110** (13), 134308 — 2024

“Classical time crystal Ginzburg-Landau study of coupled parametric oscillators”

SYT, Jay D Sau
arXiv preprint arXiv:2306.13652 — 2023

“Disorder suppression in topological semiconductor-superconductor junctions”

SYT, Sankar Das Sarma, Jay D Sau
Physical Review B **106** (17), 174501 — 2022

“Sonic and Iconic: Music Revolutions From Sound-Based Genres”

Clare Heinbaugh, Ethan Shelburne, **SYT**
The UMAP Journal **42** (3), 217-242 — 2021

PRESENTATIONS

“Classical coupled parametric oscillators as an example of time crystals defined by order parameter dynamics”

SYT, Jay Sau
APS March Meeting 2024 *Mar 2024*

“Benchmarking Computational Methods for Hydrodynamics of Noisy Quantum Chains”

SYT, Christopher White, Brayden Ware, Jay Sau
APS March Meeting 2023 *Mar 2023*

“Topology of the $O(3)$ non-linear sigma model under the gradient flow”

SYT, Christopher Monahan
The 38th International Symposium on Lattice Field Theory, LATTICE2021 **396** *Nov 2021*

“Effect of Zeeman Splitting on Andreev Reflection in Quantum Hall–Superconductor Heterostructures”

Joseph Cuzzo, Xiang Hu, **SYT**, Enrico Rossi

APS March Meeting 2020 **65** (1)

Mar 2020

“Andreev reflection in Graphene-superconductor junctions in the quantum Hall regime”

Joseph Cuzzo, **SYT**, Xiang Hu, Enrico Rossi

APS March Meeting 2019 **64** (2)

Mar 2019

SERVICE

Referee

Physical Review Letters

RESEARCH EXPERIENCE

Condensed Matter Theory Center, University of Maryland, College Park
Park, Maryland

Jay Deep Sau - College

Graduate Research Assistant

Aug 2021 – present

- Emergent phenomena in condensed matter systems.

William & Mary

Undergraduate Honors Thesis

Chris Monahan - Williamsburg, Virginia

May 2020 – May 2021

- Used computational and analytical techniques to study the gradient flow in lattice QCD systems.

William & Mary

Research Assistant

Enrico Rossi - Williamsburg, Virginia

May 2018 – May 2021

- Theoretical analysis of Andreev reflection in metal–superconductor heterojunctions in quantum Hall systems
- Calculation of non-equilibrium transport properties in Josephson junctions

Microsoft Station Q

Quantum Research Intern

Roman Lutchyn - Santa Barbara, California

May 2019 – Aug 2019

- Created simulations of biased Josephson Junctions in order to study the effects of multiple Andreev reflection
- Studied the effects of disorder on topological phase in a realistic simulated system

SCHOLARSHIPS & AWARDS

Graduate Fellowship

Joint Quantum Institute

Aug 2021

Phi Beta Kappa

William & Mary

May 2021

The Don Edward Harrison Jr. Award for Excellence in Physics

William & Mary Physics Department

Apr 2021

To be awarded to the senior with the highest demonstrated achievement in physics.

Outstanding Winner in the Interdisciplinary Contest in Modeling

Consortium for Mathematics and Its Applications

Feb 2021

Five day international Mathematical Modeling Competition with over 16,000 participants

E.G. Clark Memorial Scholarship

William & Mary Physics Department

Apr 2020

An annual scholarship to a rising senior, with a concentration in physics, who has demonstrated an outstanding aptitude for the study of physics with two letters of recommendation.

RISE Scholarship*Feb 2018**DAAD Germany*Funding to perform research in Germany for a summer (*did not accept*)**1693/Stamps Scholarship***Aug 2017**William & Mary/Stamps Organization*

National merit scholarship providing full in-state tuition, room and board; \$5000 research stipend

TECHNICAL STRENGTHS

Expert	Julia, Python, Linux/Unix
Advanced	C/C++, Mathematica