

# STUART NATHAN THOMAS

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## EDUCATION

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**University of Maryland, College Park**

*August 2021 - present*

Ph.D. in Physics

JQI Graduate Fellow

**William & Mary**

*August 2017 - May 2021*

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

**Winter Park High School**

*August 2013 - May 2017*

International Baccalaureate Diploma

IB Points: 40

Overall GPA: 4.00/4.00

## RESEARCH EXPERIENCE

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

*Aug 2021 – present*

*Graduate Research Assistant*

Jay Deep Sau - College Park, Maryland

- Emergent phenomena in condensed matter systems.

**William & Mary**

*May 2020 – May 2021*

*Undergraduate Honors Thesis*

Chris Monahan - Williamsburg, Virginia

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

**William & Mary**

*May 2018 – May 2021*

*Research Assistant*

Enrico Rossi - Williamsburg, Virginia

- 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**

*May 2019 – Aug 2019*

*Quantum Research Intern*

Roman Lutchyn - Santa Barbara, California

- 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

## PUBLICATIONS

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

SNT, Jay Sau

Bulletin of the American Physical Society — 2024

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

SNT, Brayden Ware, Jay D Sau, Christopher David White

arXiv preprint arXiv:2310.06886 — 2023

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

SNT, Jay D Sau

arXiv preprint arXiv:2306.13652 — 2023

“Disorder suppression in topological semiconductor-superconductor junctions”

SNT, 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, SNT

The UMAP Journal **42** (3), 217-242 — 2021

## PRESENTATIONS

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“Benchmarking Computational Methods for Hydrodynamics of Noisy Quantum Chains”

SNT, 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”

SNT, 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, SNT, Enrico Rossi

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

*Mar 2020*

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

Joseph Cuzzo, SNT, Xiang Hu, Enrico Rossi

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

*Mar 2019*

## SCHOLARSHIPS & AWARDS

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**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*

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

*Apr 2021*

**Outstanding Winner in the Interdisciplinary Contest in Modeling**

*Consortium for Mathematics and Its Applications*

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

*Feb 2021*

**E.G. Clark Memorial Scholarship**

*William & Mary Physics Department*

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.

*Apr 2020*

**RISE Scholarship**

*DAAD Germany*

Funding to perform research in Germany for a summer (*did not accept*)

*Feb 2018*

**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**

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**Expert**          Julia, Python, Linux/Unix

**Advanced**      C/C++, Mathematica, Git, HTML, PHP, JS, CSS