



Brian C. Seymour

PHYSICIST

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Research interests: general relativity, tests of modified gravity theories, and gravitational waves.

Education

California Institute of Technology

PHD IN PHYSICS

Pasadena, California

Aug. 2020 –

University of Cambridge

PART III OF THE MATHEMATICAL TRIPOS, DEPARTMENT OF APPLIED MATHEMATICS AND THEORETICAL PHYSICS

- Churchill Scholar

Cambridge, UK

Oct. 2019 - May. 2020

University of Virginia

B.S. IN PHYSICS AND MATHEMATICS

- With highest distinction, GPA 3.96.

Charlottesville, Virginia

Aug. 2016 - May. 2019

Experience

Undergraduate Researcher

UNIVERSITY OF VIRGINIA

- Astrophysical tests of general relativity with Kent Yagi

Charlottesville, Virginia

Oct. 2017 - Aug. 2019

Summer Undergraduate Research Fellow

LIGO LIVINGSTON

- Analyzed angular controls systems noise at LIGO with Marie Kasprzack, Adam Mullavey, and Arnaud Pele.

Livingston, Louisiana

June. 2017 - Aug. 2017

Undergraduate Researcher

JAMES MADISON UNIVERSITY

- Analysis of floating soap bubble rheology under normal stress with Klebert Feitosa

Harrisonburg, Virginia

May. 2015 - Aug. 2016

Publications

PUBLISHED

- [1] **B. Seymour** and K. Yagi. Probing Massive Scalar/Vector Fields with Binary Pulsars. arXiv:2007.14881.
- [2] **B. Seymour** and K. Yagi. Probing Massive Scalar Fields from a Pulsar in a Stellar Triple System. *Class. Quant. Grav.* 37 (2020) 14, 145008. arXiv:1908.03353.
- [3] Z. Carson, **B. Seymour** and K. Yagi. Probing Massive Future Prospects for Probing Scalar-Tensor Theories with Gravitational Waves from Mixed Binaries. *Class. Quant. Grav.* 37 (2020) 6, 065008. arXiv:1907.03897.
- [4] **B. Seymour** and K. Yagi. Testing General Relativity with Black Hole-Pulsar Binaries. *Phys. Rev. D* 98 (2018) 12, 124007. arXiv:1808.00080.

Honors & Awards

2020	NSF Graduate Research Fellowship Graduate school funding	Cambridge, UK
2019	Stephen T. Thornton Outstanding Undergraduate Physics Research Award Annual prize for the best physics undergraduate research project at UVA	Charlottesville, VA
2019	Phi Beta Kappa Collegiate honor society	Charlottesville, VA
2019	Churchill Scholarship Scholarship for a master's degree at University of Cambridge	Charlottesville, VA
2018	Astronaut Scholarship National tuition scholarship for scientific research achievement	Charlottesville, VA
2018	College Council Fall Semester Scholars Grant Research grant funding from UVA College Council.	Charlottesville, VA
2018	Mitchell Summer Research Scholarship, Summer research stipend from UVA Physics Department	Charlottesville, VA
2018	College Science Scholar Summer Research Stipend Summer research stipend through College Science Scholar Program	Charlottesville, VA
2017	Shire Award for Collegiate Education Scholarship Selective national tuition scholarship for academic performance	Charlottesville, VA
2016	College Science Scholar, Admitted to UVA program based on scientific research achievement.	Charlottesville, VA
2015	Second Century Scholarship Selected for JMU tuition scholarship	Harrisonburg, VA
2014	Eagle Scout Highest award offered in Boy Scouts of America for leadership and community service.	Charlottesville, VA

Presentations

- Apr. 2019 B. Seymour, and K. Yagi. "Black Hole-Pulsar Binary Tests of Gravity," American Physical Society April Meeting. Denver, CO. (Oral)
- Nov. 2018 B. Seymour, and K. Yagi. "Testing General Relativity with Black Hole-Pulsar Binaries," Society of Physics Students 8th Annual Undergraduate Physics Research Symposium. Charlottesville, VA. (Oral, 2nd place)
- Nov. 2018 B. Seymour, and K. Yagi. "Testing General Relativity with Black Hole-Pulsar Binaries," Gravity Group Meeting. Charlottesville, VA. (Oral)
- Oct. 2018 B. Seymour, and K. Yagi. "Testing General Relativity with Black Hole-Pulsar Binaries," Fall College Science Scholar Symposium. Charlottesville, VA. (Poster)
- Aug. 2018 B. Seymour, and K. Yagi. "Testing General Relativity with Black Hole-Pulsar Binaries," Astronaut Scholarship Foundation Technical Conference. Washington DC. (Oral)
- Nov. 2017 B. Seymour, M. Kasprzack, A. Pele, and A. Mullavey. "Non-Linear Angular Noise Coupling into Differential Arm Length," UVA Sigma Pi Sigma Symposium. Charlottesville, VA. (Oral)
- Aug. 2017. B. Seymour, M. Kasprzack, A. Pele, and A. Mullavey. "Characterization of Nonlinear Angular Noise Coupling into Differential Arm Length of the LIGO Livingston Detector," LIGO SURF Session. Pasadena, CA. (Oral)
- Nov. 2016 B. Seymour, O. Cypull, C. O'Dea, S. Cheng, and K. Feitosa. "Stress Induced Rearrangements in a Bubble Raft," SESAPS Conference. Charlottesville, VA. (Oral)
- Oct. 2016 B. Seymour, O. Cypull, C. O'Dea, S. Cheng, and K. Feitosa. "Interfacial Bubble Deformations," UVA Sigma Pi Sigma Symposium. Charlottesville, VA. (Poster)
- Aug. 2016 B. Seymour, O. Cypull, S. Cheng, and K. Feitosa. "Stress Induced Rearrangements in a Bubble Raft," JMU Summer Symposium. Harrisonburg, VA. (Oral)
- Mar. 2016 B. Seymour, O. Cypull, S. Cheng, and K. Feitosa. "Interfacial Bubble Deformations," 83rd Annual American Physical Society March Meeting. Baltimore, MD. (Poster)
- Nov. 2015 B. Seymour, O. Cypull, and K. Feitosa. "Interfacial Bubble Deformations," Third Annual Virginia Soft Matter Workshop. Charlottesville, VA. (Oral)
- Aug. 2015 B. Seymour, O. Cypull, S. Cheng, and K. Feitosa. "Bubble Deformations at the Air-Water Interface," JMU Summer Symposium. Harrisonburg, VA. (Oral)

Workshops

- 2019 **Kavli RISE Summer School on Gravitational Waves**
Summer school discussing current research in gravitational waves for graduate students.

Skills

- Programming** Python, Java, C++, Matlab, Mathematica, BASH, and Interactive Data Language (IDL)
- Physics Software** LaTeX, ROOT, ImageJ, XMGrace, and Igor Pro
- Selected Classes** Quantum Field Theory, General Relativity, String Theory, Differential Geometry, and Computational Physics