Brian C. Seymour

Curriculum Vitae

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Education

2016 – Present **University of Virginia**, *Charlottesville, Virginia*, B.S. Physics and Mathematics, 3.97/4.0 GPA.

2015 – 2016 **James Madison University**, *Harrisonburg, Virginia*, Physics: transferred, 3.88/4.0 GPA.

Research

Fall 2017 – Present **Undergraduate Researcher**, *Charlottesville, Virginia*, Astrophysical tests of general relativity with Kent Yagi.

Summer 2017 **Summer Undergraduate Research Fellow**, *Livingston, Louisiana*, Analyzed angular controls systems noise at LIGO through the Caltech National Science Foundation REU with Marie Kasprzack, Adam Mullavey, and Arnaud Pele.

May 2015 – Aug 2016 **Undergraduate Researcher**, *Harrisonburg, Virginia*, Analysis of floating soap bubble rheology under normal stress with Klebert Feitosa.

Awards and Fellowships

2018 **Astronaut Scholarship**, Selective national tuition scholarship founded by the Mercury 7 astronauts for scientific research achievement.

2018 **College Council Fall Semester Scholars Grant**, Research grant funding from UVA College Council.

2018 **Mitchell Summer Research Scholarship**, Summer research stipend from UVA Physics Department.

2018 **College Science Scholar Summer Research Stipend**, Summer research stipend through College Science Scholar Program.

2017 **Shire Award for Collegiate Education Scholarship**, Selective national tuition scholarship for academic performance.

2016 **College Science Scholar**, Admitted to UVA program based on scientific research achievement.

2014 **Eagle Scout**, Highest award offered in Boy Scouts of America for leadership and community service.

Publications

2018 B. Seymour and K. Yagi. *Testing General Relativity with Black Hole-Pulsar Binaries*. Phys. Rev. D **98**, 124007 (2018). arXiv:1808.00080.

2017 B. Seymour, M. Kasprzack, A. Mullavey, and A. Pele. *Characterization of Nonlinear Angular Noise Coupling into Differential Arm Length of the LIGO Livingston Detector*. LIGO Document T1700343-v1.

In preparation N. Hagans, B. Seymour, P. Shabane, S. Cheng and K. Feitosa. *Attractive and Repulsive Interactions in a Joined Pair of Floating Bubbles*. In preparation to be submitted to Soft Matter.

Oral and Poster Presentations

Nov. 9, 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)

Oct. 17, 2018 B. Seymour, and K. Yagi. "Testing General Relativity with Black Hole-Pulsar Binaries," Fall College Science Scholar Symposium. Charlottesville, VA. (Poster)

Aug. 25, 2018 B. Seymour, and K. Yagi. "Testing General Relativity with Black Hole-Pulsar Binaries," Astronaut Scholarship Foundation Technical Conference. Washington DC. (Oral)

Nov. 3, 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," UVA Sigma Pi Sigma Symposium. Pasadena, CA. (Oral)

Aug. 24, 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. 10, 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. 28, 2016 B. Seymour, O. Cypull, C. O'Dea, S. Cheng, and K. Feitosa. "Stress Induced Rearrangements in a Bubble Raft," UVA Sigma Pi Sigma Symposium. Charlottesville, VA. (Poster, 1st place)

July 28, 2016 B. Seymour, O. Cypull, C. O'Dea, S. Cheng, and K. Feitosa. "Stress Induced Rearrangements in a Bubble Raft," JMU Summer Symposium. Harrisonburg, VA. (Oral)

Mar. 16, 2016 B. Seymour, O. Cypull, S. Cheng, and K. Feitosa. "Interfacial Bubble Deformations," 83rd Annual American Physical Society March Meeting. Baltimore, MD. (Poster)

Nov. 14, 2015 B. Seymour, O. Cypull, S. Cheng, and K. Feitosa. "Interfacial Bubble Deformations," University of Virginia Soft Matter Workshop. Charlottesville, VA. (Oral)

July 30, 2015 B. Seymour, O. Cypull, S. Cheng, and K. Feitosa. "Bubble Deformations at Air-Water Interface," JMU Summer Symposium. Harrisonburg, VA. (Oral)

Computer Skills and Selected Classes

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.

Additional Work

2016 – Present **Community Physics Outreach**, Physics demo shows for children and CLASS Afterschool Program at Clark Elementary.

2016 **Android Physics App**, Published app 'LaTeX Math FlashCards' that has nearly 10,000 downloads.

2013 **Engineering Team Project**, We won a $10,000 grant from the Lemelson-MIT Program to build a green energy vertical axis wind turbine and present it at a MIT conference.

References

Prof. Kent Yagi, *Research Advisor*, ky5t@virginia.edu.

Dr. Marie Kasprzack, *Research Advisor*, mkasprzack@lsu.edu.

Prof. Klebert Feitosa, *Research Advisor*, feitoskb@jmu.edu.