

# Samuel S. Y. Wong

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## Education

2020 – Present **Ph.D., Physics**, *Stanford University*, Stanford, CA, USA.

2016 – 2020 **HBSc. with High Distinction, Mathematics and Physics Specialist**, *University of Toronto*, Toronto, ON, Canada.

Beatrice Evelyn Rodgers Scholarship for top senior mathematics and physics specialist.  
GPA: 3.96

2012 – 2016 **Ontario Secondary School Diploma**, *Markham District High School*, Markham, ON, Canada.  
Governor General's Academic Medal for top graduating student.  
ACT: 36

## Research Experience

Sep 2020 – Dec 2020 **Research Assistant**, *Stanford Institute for Theoretical Physics, Stanford University*.  
**Supervised by Professor Peter Graham.**

- Investigated novel methods of dark-photon detection through tabletop experiments.

May 2019 – Aug 2020 **Research Assistant**, *Department of Physics, University of Toronto*.  
**Supervised by Professor Erich Poppitz.**

- Studied color confinement in supersymmetric  $SU(N)$  Yang-Mills theory in compactified space.
- Discovered magnetless solitons and their analytic solutions.
- Large-scale computation of string tensions using the Niagara supercomputer at the SciNet HPC Consortium.
- Published in *Journal of High Energy Physics* [1,2].

Sep 2018 – Apr 2019 **Research Student**, *Department of Physics, University of Toronto*.  
**Supervised by Professor Robert Orr.**

- Studied radiation-damaged silicon detectors in preparation for the High-Luminosity LHC upgrade.
- Designed and built a laser system for measuring charge collection efficiency of damaged detectors.

May – Aug 2018 **Research Assistant**, *Department of Astronomy & Astrophysics, University of Toronto*.  
**Supervised by Professor Jo Bovy.**

- Used machine-learning methods to study the structure of the third integral from the data of Gaia telescope.
- Contributing author of the astrophysics Python library, Galpy.

## Publications

- [1] Mathew W. Bub, Erich Poppitz, and **Samuel S. Y. Wong**, *Confinement on  $\mathbb{R}^3 \times \mathbb{S}^1$  and Double-String Collapse*, *JHEP* **01** (2021) 044, [[arXiv:2010.04330](#) [[hep-th](#)]].
- [2] Andrew A. Cox, Erich Poppitz, and **Samuel S. Y. Wong**, *Domain walls and deconfinement: a semiclassical picture of discrete anomaly inflow*, *JHEP* **12** (2019) 011, [[arXiv:1909.10979](#) [[hep-th](#)]].

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## Talks

1. *Domain walls and deconfinement: a semiclassical picture of discrete anomaly inflow*. Theoretical High Energy Physics Seminars, Department of Physics, University of Toronto, January 2020.
2. *Domain walls and confinement: a new formula for the boundaries of BPS solitons*. Canadian Undergraduate Physics Conference, McGill University, November 2019.
3. *The search for  $I_3$  in Gaia*. Summer Undergraduate Research Program Presentation, Department of Astronomy & Astrophysics, University of Toronto, August 2018.

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## Awards and Honors

- 2020 **The Beatrice Evelyn Rodgers Scholarship**, *Department of Physics, University of Toronto*.  
Awarded to the student who achieved the highest sessional GPA in fourth year of the Specialist Program in Mathematics and Physics.
- 2019 **George Luste (In Program) Scholarship**, *Department of Physics, University of Toronto*.  
Awarded to a second or third year student in physics for academic merit.
- 2018, 2019 **The Class of 1930 and Associates Scholarship in Mathematics and Physics**, *Department of Physics, University of Toronto*.  
Awarded to a second or third year student for academic achievement in the Specialist Program in Mathematics and Physics.
- 2018, 2019 **Undergraduate Student Research Awards**, *Natural Sciences and Engineering Research Council of Canada (NSERC)*.  
Nationally competitive undergraduate research scholarship.
- 2018 **The Coxeter Scholarship in Mathematics**, *Department of Mathematics, University of Toronto*.  
Awarded to an outstanding student in the Department of Mathematics.
- 2018 **New College Alumni Association In-Course Scholarship**, *New College, University of Toronto*.  
Awarded to a New College student for academic achievement.
- 2017 **George Luste Prize in First Year Physics**, *Department of Physics, University of Toronto*.  
Awarded to the student with the highest grade in first year physics course PHY152.
- 2016 **Silver Medal**, *University Physics Competition*.
- 2016 **University of Toronto Scholar**, *University of Toronto*.  
Entrance scholarship awarded for academic achievement.
- 2016 **Robert Bruce Scholarship**, *New College, University of Toronto*.  
Entrance scholarship awarded for academic achievement.
- 2016 **Governor General's Academic Medal**, *Markham District High School*.  
Awarded to the student graduating with the highest average from a high school.
- 2014 **Shad Valley Scholarship**.  
Nationally competitive science summer camp.

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## Other Work Experience

- May – Aug **Developer**, *Vobii*.  
2017 Created first-year level physics content for the educational website, [vobii.com](http://vobii.com).

## Computing skills

- Python
- Java
- High-Performance Computing