## Mr. Sanha Cheong


CONTACT INFORMATION

**Stanford University**
**Department of Physics**
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EDUCATION

**Stanford University**, Stanford, CA

Ph.D. in Physics **Starting Fall 2017**

- Works on the ATLAS experiment at the SLAC Group
- Interested in particle physics, cosmology, machine learning, novel data analysis algorithms, and artificial intelligence

**University of Rochester**, Rochester, NY

B.S. in Physics & Astronomy (Highest Distinction), B.A. in Mathematics **Class of 2017**

- Overall GPA: 3.92/4.00, Major GPA 3.99/4.00, Dean's List for all eligible semesters
- Elected to Phi Beta Kappa (ΦBK)
- International Baccalaureate (IB) Scholarship, 16k per year

**Yew Chung International School of Shanghai**, Shanghai, China

International Baccalaureate (IB) Diploma **Class of 2013**

- Total of 8 IB subjects, including Further Mathematics and Higher Level Physics, Chemistry, and Economics

RESEARCH INTERESTS

**Particle experiments, phenomenology, cosmology, machine learning, and algorithms** beyond the standard model (BSM), supersymmetry, dark matter, QCD and jet physics, Higgs, $CP$-violation, early-stage universe, dark energy, large-scale structures, deep learning, convolutional neural networks (CNN), other statistical analysis algorithms, artificial intelligence

RESEARCH EXPERIENCES

**University of Rochester**, Rochester, NY

Research Assistant (Adviser: Prof. Regina Demina) **November 2015 ~ May 2017**

- Research in Baryon Acoustic Oscillations (BAO) using SDSS-III BOSS data
- Development of a new algorithm accelerating the calculation of the galaxy 'correlation function' with an alternative background subtraction method

Lab Technician (Adviser: Prof. Pierre-Alexandre Gourdain) **June 2015 ~ December 2015**

- Designing and building equipments for high-energy density plasma experiments

OTHER ACADEMIC EXPERIENCES

**University of Rochester**, Rochester, NY

- Senior thesis in *Theoretical Cosmology, Cosmological Inhomogeneities and Their Backreaction* (Adviser: Prof. Eric G. Blackman), Spring 2017
- Reading course in theoretical physics, *The Kapitsa Society*, August 2016 ~ May 2017
- Independent study in *Representation Theory and Lie Groups/Algebras* (Adviser: Prof. Jonathan Pakianathan), Spring 2015
- Independent study in *Philosophy of Physics* (Adviser: Prof. Hayley Clatterbuck), Fall 2016

## Teaching & Advising Experiences

**University of Rochester**, Rochester, NY

Teaching Assistant

Department of Physics & Astronomy **August 2015 ~ May 2017**

- PHY 227 Thermodynamics & Statistical Mechanics, Spring 2017
- PHY 142 Electricity & Magnetism (Honors), Fall 2016
- PHY 143 Waves and Modern Physics (Honors), Spring 2016
- PHY 122 Electricity & Magnetism, Fall 2015

Department of Mathematics **August 2014 ~ May 2015**

- MTH 172 Honors Calculus II, Spring 2015
- MTH 171 Honors Calculus I, Fall 2014

Peer Adviser (Physics & Astronomy, Mathematics) **August 2016 ~ May 2017**

*College Center for Advising Services*

- Advising & counseling service for younger students about major, research opportunities, connections with professors, independent study, study abroad, etc.

Physics GRE Tutor **August 2016 ~ May 2017**

Society of Physics Students (SPS), Department of Physics & Astronomy

- Review materials and lecture notes to prepare students for the Physics GRE, review sessions and Q & A hours

## Leadership & Service Positions

**University of Rochester**, Rochester, NY

Business Manager, *Society of Physics Students (SPS)* **June 2016 ~ May 2017**

- Organizing and running SPS & departmental events, fundraising and managing the budget

Student Representative **September 2016 ~ May 2017**

*PAS Undergraduate Curriculum Committee*

- Giving feedbacks about the current undergraduate curriculum for Physics & Astronomy majors and suggesting new courses based on student needs

## Refereed Journal Publications

[1] R. Demina, **S. Cheong**, S. BenZvi, O. Hindrichs. A Computationally Efficient Approach for Calculating Galaxy Two-Point Correlationstext. Submitted to *Monthly Notices of the Royal Astronomical Society* (arXiv:1611.09892).

## Conference Talks/Posters

[1] **S. Cheong**. Modification to the Calculation of a Two-point Correlation Function. *Q2C: Quarks to Cosmos, APS April Meeting 2017*, Washington, DC, January 28-31, 2017.

[2] **S. Cheong**. The First 380,000 Years in 5 Minutes. *PAS Department Summer Research & Internship Symposium*, Rochester, NY, October 1, 2016.

[3] **S. Cheong**. Introduction to Baryon Acoustic Oscillations (BAO). *University of Rochester Summer REU Presentation*, Rochester, NY, August 5, 2016.

## Awards and Such

[1] Janet Fogg Prize. *University of Rochester*, May 2017.

[2] Excellence in Undergraduate Teaching. *University of Rochester*, May 2017.

## Professional Memberships

American Astronomical Society (AAS)
American Physical Society (APS)
Phi Beta Kappa (ΦBK)
Society of Physics Students (SPS)
Sigma Pi Sigma (ΣΠΣ)

COMPUTER AND HARDWARE SKILLS

Computer Programming & Data Analysis:

- C, C++, CERN ROOT, Python, Java, Mathematica
- UNIX shell scripting (Bash)
- Simple Linux Utility for Resource Management (SLURM)

Document Editing and Productivity Software:

- TEX (LATEX, BIBTEX)
- GitHub, Microsoft Office, Google Docs

Operating Systems:

- Microsoft Windows family, Ubuntu

Hardware Skills

- Basic machine shop training, circuit design (Protel DXP), printed circuit boards

LANGUAGES

English (fluent), Korean (fluent), Mandarin (conversational)

CITIZENSHIP

Republic of Korea