

## Mr. Sanha Cheong

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### CONTACT INFORMATION

**University of Rochester**  
**Department of Physics & Astronomy**  
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### EDUCATION

**Stanford University**, Stanford, CA

Ph.D. in Physics

**Starting Fall 2017**

- Works on **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 ( $\Phi$ BK)
- 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 Correlation](#)text. Submitted to *Monthly Notices of the Royal Astronomical Society* (arXiv:1611.09892).

CONFERENCE  
TALKS/POSTERS

- [1] **S. Cheong**. Introduction to Baryon Acoustic Oscillations (BAO). *University of Rochester Summer REU Presentation*, Rochester, NY, August 5, 2016.
- [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**. Modification to the Calculation of a Two-point Correlation Function. *Q2C: Quarks to Cosmos, APS April Meeting 2017*, Washington, DC, January 28-31, 2017.

PROFESSIONAL  
MEMBERSHIPS

American Astronomical Society (AAS)  
American Physical Society (APS)  
Phi Beta Kappa ( $\Phi$ BK)  
Society of Physics Students (SPS)  
Sigma Pi Sigma ( $\Sigma$ ΠΣ)

COMPUTER AND HARDWARE SKILLS	<p>Computer Programming &amp; Data Analysis:</p> <ul style="list-style-type: none"> <li>• C, C++, CERN ROOT, Python, Java, Mathematica</li> <li>• UNIX shell scripting (Bash)</li> <li>• Simple Linux Utility for Resource Management (SLURM)</li> </ul> <p>Document Editing and Productivity Software:</p> <ul style="list-style-type: none"> <li>• T<sub>E</sub>X (L<sup>A</sup>T<sub>E</sub>X, B<sub>I</sub>B<sub>T</sub>E<sub>X</sub>)</li> <li>• GitHub, Microsoft Office, Google Docs</li> </ul> <p>Operating Systems:</p> <ul style="list-style-type: none"> <li>• Microsoft Windows family, Ubuntu</li> </ul> <p>Hardware Skills</p> <ul style="list-style-type: none"> <li>• Basic machine shop training, circuit design (Protel DXP), printed circuit boards</li> </ul>
LANGUAGES	English (fluent), Korean (fluent), Mandarin (conversational)
CITIZENSHIP	Republic of Korea