

# SAMEER

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## EDUCATION

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### **Pennsylvania State University**

Ph.D., Astronomy & Astrophysics

Minor in Computer science

*University Park, PA*

*August 2016 - August 2022*

### **Pennsylvania State University**

Master of Science, Major: Astronomy & Astrophysics

*University Park, PA*

*Graduation: August 2018*

### **Indian Institute of Space Science & Technology**

Bachelor of Technology, Major: Astronomy & Astrophysics

*Kerala, India*

*Graduation: August 2011*

## RESEARCH EXPERIENCE

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### **Graduate Student Researcher, Penn State**

Thesis advisor: Prof. Jane Charlton

*University Park, PA*

*2018 - 2022*

- Dissertation focused on [characterizing the circumgalactic medium](#) using UV/Optical spectroscopy.
- Developed BAYESIAN inference based methods for [multiphase ionization modeling](#) of Quasar Absorption Line Systems.
- Experienced in analysing UV/Optical spectroscopic data, both ground based (HIRES and UVES) and COS/*HST*.
- Extensive experience with data reduction and processing in a PYTHON environment.
- Adept at parallel computing using cluster architecture. Dedicated access to Cyber-LAMP cluster at Penn State, and allocation on Stampede2 cluster.
- Experience in analysing *Chandra* X-ray data of [BAL to non-BAL transforming quasars](#).

## WORK EXPERIENCE

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### **Observational Astronomer & Mass Spectroscopist**

Physical Research Laboratory

*Ahmedabad, India*

*Aug 2011 - Aug 2016*

- Handled the operations of a 1.2m telescope for carrying out [variability study of blazars](#) in the Near Infrared and Optical regimes from Mt. Abu Infrared Observatory (MIRO), Rajasthan. Developed PYTHON based codes to handle data from a variety of focal-plane instruments i.e. CCDs in Optical and NICMOS in Infrared.
- Handled the operations of a secondary ion mass spectrometer (NanoSIMS) to carry out [studies of early solar system objects](#) such as cometary material, meteorites, and Apollo returned lunar samples. Developed MATLAB based codes for real time processing of data acquired with the NanoSIMS.

## TEACHING & MENTORING EXPERIENCE

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### ASTRO-11

*Spring 2018, Spring 2017, Fall 2016*

Taught introduction to Astronomy for non science majors.

### ASTRO 320

*Fall 2016*

#### Observational Astronomy & Experimental Physics

Oversaw the setup of telescopes for observing and instruments for experimentation.

### Undergraduate mentoring

*Fall 2021-*

Shengdi You - Penn State undergraduate, mentoring on different projects to apply multiphase ionization modeling on COS G130M/G160M and HIRES data.

## AWARDS

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### Zaccheus Daniel Fellowship

*2018, 2019, 2021*

Penn State

### Astrophysical Frontiers in the Next Decade and Beyond

*2018*

Travel Grant by NRAO

### Homer F. Braddock/Nellie H. and Oscar L. Roberts Fellowship

*2016*

Penn State

### Academic Excellence Award

*2011*

Indian Institute of Space Science & Technology

### Full scholarship

*2007 - 2011*

Indian Institute of Space Science & Technology

## GRANTS (~ \$300,000)

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### HST program 16607, Co-PI

*2021 (Cycle 29)*

Title: Is There a Relationship Between the Metallicity of the Circumgalactic Medium and the Galaxy Orientation?

### HST program 17051, Co-I

*2022 (Cycle 30)*

Title: A ULLYSES Survey of the Magellanic Clouds: a Laboratory for the Physics of Interfaces between Hot and Cold Gas

## COMPUTE ALLOCATIONS

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### XSEDE Allocation

*2000 SUs*

PHY210047: Multiphase, Cloud-by-Cloud, Bayesian Analysis of the Relationship Between the Metallicity of the Circumgalactic Medium and Galaxy Orientation

## TALKS & COLLOQUIA

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### Dissertation Talk

*June 16, 2022*

AAS 240

*Pasadena*

### Invited Talk

*January 27, 2022*

Carnegie Tea Talk

*Online, Carnegie Observatories*

<b>Contributed Talk</b> STARs Lab Meeting	<i>November 5, 2021 Online, ASU</i>
<b>Contributed Talk</b> Milky Way Halo Research Group Meeting	<i>October 15, 2021 Online, STScI</i>
<b>Contributed Talk</b> Lunch Talk	<i>September 21, 2021 Online, Penn State</i>
<b>Invited Talk</b> Baltimore Winds Workshop	<i>August 19, 2021 Johns Hopkins University</i>
<b>Contributed Talk</b> Galread Extragalactic Discussion Group	<i>April 5, 2021 Online, Princeton</i>
<b>Contributed Talk</b> High Energy Astro Group Seminar	<i>March 25, 2021 Online, MIT</i>
<b>Contributed Talk</b> Lunch Talk	<i>March 23, 2021 Online, Penn State</i>
<b>Tutorial contributor</b> & presenter Fundamentals of Gaseous Halos	<i>Jan 20, 2021 Online, UCSB</i>
<b>Invited presentation</b> Data Science Consortium	<i>Oct 29, 2020 Online, University of Michigan</i>
<b>Department Colloquium</b> Astronomy & Astrophysics	<i>June 19, 2020 Online, New Mexico State University</i>
<b>Contributed Talk</b> Central Pennsylvania Consortium Astronomers' Meeting	<i>April 19, 2018 Dickinson College, PA</i>
<b>Contributed Talk</b> Lunch Talk	<i>Feb 27, 2018 Penn State</i>

## CONFERENCES

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<b>iPoster presentation</b> Statistical Challenges in Modern Astronomy VII	<i>June 9, 2021 Online, Penn State</i>
<b>iPoster presentation</b> American Astronomical Society	<i>2021 Online</i>
<b>Poster presentation</b> American Astronomical Society	<i>2019 University of Washington</i>
<b>Poster presentation</b> Astrophysical Frontiers in the Next Decade and Beyond	<i>2018 NRAO</i>

## PRESS COVERAGE

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[timesofindia.com](https://timesofindia.com): Black & bright: PRL joins world to gauge black hole spin.

## VOLUNTEERING & OUTREACH

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<b>Subject Matter Expert</b> Space Telescope Science Institute Public Outreach	<i>2021- Online</i>
<b>AAS Chambliss Judge</b> Judge for iPoster presentations	<i>2021 Online</i>
<b>ASTROFEST</b> Volunteer for Telescope viewing	<i>2016-2019 Penn State</i>
<b>Colloquium Lunch Organizer</b> Dept. of Astronomy & Astrophysics	<i>2018 Penn State</i>
<b><a href="#">StackOverflow</a> contributor</b>	<i>2018-Present</i>
<b>Mass spectroscopy experiment demonstrations for public</b> NanoSIMS Lab, Physical Research Laboratory	<i>2011-2014</i>