

Akshaya Subbanna M S

Postdoctoral Research Associate
Korea Astronomy and Space Science Institute (KASI)
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EMPLOYMENT

Postdoctoral Research Associate Dec 2021 – Present
Korea Astronomy and Space Science Institute

Advisor: Dr. Thiem Hoang

Project Description: Understanding the dust grain alignment and measurement of the magnetic field strength for the region around the centre of our Galaxy.

Teaching Assistant 2018 - 2020
CHRIST (Deemed to be University), Bengaluru, India

- ✓ Undergraduate and Postgraduate Physics and Astronomy Laboratory Instructor
- ✓ Python and IDL programming instructor

Adjunct Faculty 2017-2018
CHRIST (Deemed to be University), Bengaluru, India

- ✓ Postgraduate Galactic Astronomy Course

Research Assistant 2014-2017
CHRIST (Deemed to be University), Bengaluru, India

Project: The Characterization and Modeling of the Ultraviolet Sky

PI: Dr. Ravichandran. S, CHRIST (Deemed to be University), Bengaluru, India

Co-PI: Prof. Jayant Murthy, Indian Institute of Astrophysics, Bengaluru, India.

Responsibilities:

- ✓ Project budget handling
- ✓ Progress and final report submissions
- ✓ Conference presentations
- ✓ Handled Astronomy and Astrophysics elective course
- ✓ Build scientific cases for external funding projects with the PIs

EDUCATION

Ph.D. in Physics 2021
CHRIST (Deemed to be University), Bengaluru, India

Thesis: Study of the Diffuse Ultraviolet Background Radiation at High Galactic Latitudes

Advisors: Dr. Ravichandran. S (CHRIST) & Prof. Jayant Murthy (Indian Institute of Astrophysics)

Master of Science in Physics 2014
CHRIST (Deemed to be University), Bengaluru, India

- ✓ CGPA: 3.96/4.0
- ✓ **FIRST RANK for the University**
- ✓ *Thesis:* Study of the Diffuse Ultraviolet Background using GALEX data
- Advisor:* Prof. Jayant Murthy (Indian Institute of Astrophysics)

Bachelor of Science 2012
Jain University, Bengaluru, India

- ✓ CGPA: 4.682/5
- ✓ **FIRST RANK and GOLD MEDALIST**
- ✓ Triple major in Physics, Chemistry, and Mathematics

AWARDS

- | | |
|--|-----------|
| ✓ Ministry of Human Resource Development Scholarship | 2009–2014 |
| ✓ Christ University Academic Excellence Scholarship | 2014 |
| ✓ Karnataka Science and Technology Scholarship | 2012–2014 |

OBSERVING PROPOSALS

UVIT aboard ASTROSAT

Far-Ultraviolet Galactic Plane Survey (FUV-GPS)

Cycle A12

- ✓ Role: Co-I (PI: Rahna P.T.; Co-Is: J. Murthy, M. Das, & K. -I. Seon)
- ✓ PID: #A12_088 & #A12_089 (June 2022)

Diffuse Ultraviolet Radiation in the Regions of Low Column Density

Cycle A05

- ✓ Role: PI (Co-Is: J. Murthy & Ravichandran S.)
- ✓ PID: #A05_156 (March 2019)

CONFERENCE PRESENTATIONS

- | | |
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| • <i>Dynamics of the Galactic Centre and its Magnetic Field</i>
Dust Polarimetry and Applications in Astrophysics, Vietnam | Nov 2023 |
| • <i>Magnetic Field at the Galactic Centre from Multi-wavelength Polarization</i>
Korea Astronomical Society Fall Meeting | Oct 2023 |
| • <i>Dynamics of the Galactic Centre and its Magnetic Field (Invited, Online)</i>
CHRIST (Deemed to be University), India | Oct 2023 |
| • <i>Dust Grain Alignment and Disruption from Thermal Dust Polarization</i>
APRIM 2023, Japan | Aug 2023 |
| • <i>Grain Alignment and Magnetic Field at the Galactic Centre from Polarized Dust Emission</i>
SOFIA Tele-Talk Series, Online | Jun 2023 |
| • <i>Grain Alignment and Magnetic Field at the Galactic Centre</i>
Mid-West Magnetic Field Meeting 2023, Online | May 2023 |
| • <i>Alignment and Disruption of Dust Grains at the Galactic Centre</i>
Korea Astronomical Society Spring Meeting | Apr 2023 |
| • <i>Magnetic field at the Galactic Centre from Infrared Polarization</i>
SAGI Astrophysics Workshop, Vietnam | Jul 2022 |
| • <i>Dust scattering and molecular hydrogen at the Galactic Pole</i>
International Conference on Infrared Astronomy and Astrophysical Dust, India | Oct 2019 |
| • <i>Components of the diffuse ultraviolet background radiation</i>
37th Meeting of Astronomical Society of India | Feb 2019 |
| • <i>Diffuse radiation at the Galactic poles</i>
Young Astronomers' Meet, India | Sep 2018 |
| • <i>Modeling the diffuse radiation towards Galactic cirrus cloud G251.2+73.5</i>
35th Meeting of Astronomical Society of India | Mar 2017 |
| • <i>Study of the distribution and properties of interstellar dust</i>
Astronomy Research: Opportunities and Challenges workshop, India | Jul 2016 |
| • <i>Modelling of the dust scattered halos observed around bright star</i>
34th Meeting of Astronomical Society of India | May 2016 |

PROFESSIONAL SERVICES

37th Meeting of the Astronomical Society of India

Feb 2019

- Local Organizing Committee member for the meeting held at CHRIST (Deemed to be University) with about 300 participants from all over India

Young Astronomers' Meet

Sep 2018

- Scientific Organizing Committee member for the meeting held at Physical Research Laboratory, India

Multi-wavelength observations using ASTROSAT

Dec 2017

- Local Organizing Committee member for the workshop held at CHRIST (Deemed to be University) with about 35 participants from all over India

Stellar Astrophysics Workshop

Feb 2017

- Local Organizing Committee member for the event held at CHRIST (Deemed to be University) with about 50 participants from all over India

SKILLS

Programming

IDL, Python, C, MATLAB, HTML, CSS

Softwares & Tools

IRAF, Topcat, SAOImageDS9, VisIt, Paraview, CASA, CARTA, \LaTeX

Datasets

Galex, IRAS, Planck, SOFIA/HAWC+, JCMT/SCUPOL/HARP/POL2, ALMA, Herschel, Pan-STARRS1

Operating Systems

Windows, Linux, Mac OS X

Models

3D Radiative Transfer, Polarized Radiation Simulator (POLARIS), Magnetohydrodynamical Simulations postprocessing (Athena)

PUBLICATIONS

Journal Articles

4. *Magnetic Field at the Galactic Centre from Multi-Wavelength Dust Polarization*, **Akshaya M. S.**, and Hoang T., **MNRAS**, 2024, 531, 5012.
3. *Alignment and rotational disruption of dust grains in the Galactic Centre revealed by polarized dust emission*, **Akshaya M. S.** and Hoang T., **MNRAS**, 2023, 522, 4196.
2. *Components of the Diffuse Ultraviolet Radiation at High Latitudes*, **Akshaya M. S.**, Murthy J., Ravichandran S., Henry R. C., and Overduin J., **MNRAS**, 2019, 489, 1120.
1. *The Diffuse Radiation Field at High Galactic Latitudes*, **Akshaya M. S.**, Murthy J., Ravichandran S., Henry R. C., and Overduin J., **ApJ**, 2018, 858, 101.

Preprint

- *The Diffuse Ultraviolet and Optical Background: Status and Future Prospects*, Murthy J., **Akshaya M. S.**, and Ravichandran S., **arXiv:1909.05325**, 2019.

Papers in Preparation

2. *Synthetic Polarization of the Central Molecular Zone using POLARIS++*, **Akshaya M. S.** and Hoang T.
1. *Dependence of an Unidentified Component of the Diffuse Ultraviolet Background on Galactic Coordinates*, **Akshaya M. S.**, Overduin J., Murthy J., Ravichandran S., and Henry R. C.

REFERENCES

Prof. Jayant Murthy

✉ jmurthy@yahoo.com

Senior Professor

Indian Institute of Astrophysics

Dr. Thiem Hoang

✉ thiemhoang@kasi.re.kr

Principal Researcher

Korea Astronomy and Space Science Institute

Dr. Ravichandran S

✉ ravichandran.s@christuniversity.in

Associate Professor

CHRIST (Deemed to be University)

Bengaluru, India