Akshaya Subbanna M S

Visiting Researcher
Korea Astronomy and Space Science Institute
Daejeon 34055, Republic of Korea

akshayams.github.io
0000-0001-6258-7474
akshaya.subbanna@gmail.com

RESEARCH INTERESTS

Construction of the three-dimensional map of the magnetic fields from spectroscopy, polarization, and synthetic observations and understanding its role in star formation.

EMPLOYMENT

Visiting Researcher Aug 2025 – Oct 2025
Korea Astronomy and Space Science Institute
- ✓ Invited by Dr. Thiem Hoang
- ✓ Project: Magnetic field studies of the Central Molecular Zone

Postdoctoral Research Associate Dec 2021 – Nov 2024
Korea Astronomy and Space Science Institute
Advisor: Dr. Thiem Hoang
Project Description: Understanding the dust grain alignment physics and estimation of the magnetic field strength for the Galactic centre region.

Teaching Assistant Jun 2018 - Mar 2020
CHRIST (Deemed to be University), Bengaluru, India
- ✓ Undergraduate and Postgraduate Physics and Astronomy Laboratory Instructor
- ✓ Python and IDL programming instructor

Adjunct Faculty Nov 2017- Mar 2018
CHRIST (Deemed to be University), Bengaluru, India
- ✓ Postgraduate Galactic Astronomy Course

Research Assistant Nov 2014- Oct 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 research grants with the PIs

EDUCATION

Ph.D. in Physics Dec 2015 - Oct 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 May 2014
CHRIST (Deemed to be University), Bengaluru, India
- ✓ ***CGPA*: 3.96/4**
- ✓ ***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 Apr 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

- *Synthetic polarization of the Galactic Centre (Invited)* May 2025
  SAGI Astrophysics Workshop, Vietnam
- *Dynamics of the Galactic centre and its magnetic field (Online)* Nov 2023
  Dust Polarimetry and Applications in Astrophysics, Vietnam
- *Magnetic field at the Galactic centre from multi-wavelength polarization* Oct 2023
  Korea Astronomical Society Fall Meeting
- *Dynamics of the Galactic centre and its magnetic field (Invited, Online)* Oct 2023
  CHRIST (Deemed to be University), India
- *Dust grain alignment and disruption from thermal dust polarization* Aug 2023
  APRIM 2023, Japan
- *Grain alignment and magnetic field at the Galactic centre from polarized dust emission (Online)*, SOFIA Tele-Talk Series Jun 2023
- *Grain alignment and magnetic field at the Galactic centre (Online)* May 2023
  Mid-West Magnetic Field Meeting 2023
- *Alignment and disruption of dust grains at the Galactic centre* Apr 2023
  Korea Astronomical Society Spring Meeting
- *Magnetic field at the Galactic centre from infrared polarization* Jul 2022
  SAGI Astrophysics Workshop, Vietnam
- *Dust scattering and molecular hydrogen at the Galactic poles* Oct 2019
  International Conference on Infrared Astronomy and Astrophysical Dust, India

- *Components of the diffuse ultraviolet background radiation* Feb 2019
  37th Meeting of Astronomical Society of India
- *Diffuse radiation at the Galactic poles* Sep 2018
  Young Astronomers' Meet, India
- *Modeling the diffuse radiation towards Galactic cirrus cloud G251.2+73.5* Mar 2017
  35th Meeting of Astronomical Society of India
- *Modelling of the dust scattered halos observed around bright stars* May 2016
  34th Meeting of Astronomical Society of India

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, ALMA, Herschel, Pan-STARRS1
Operating Systems:	Windows, Linux, Mac OS X
Computational Menthods:	Machine Learning (basics), 3D Radiative Transfer, Polarized Radiation Simulator (POLARIS), Magneto-hydrodynamical Simulations post-processing (Athena)

PUBLICATIONS

FIRST AUTHOR

1. *Magnetic Field at the Galactic Centre from Multi-Wavelength Dust Polarization*, **Akshaya M. S.**, and Hoang T., **MNRAS**, 2024, 531, 5012.
2. *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.
3. *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.
4. *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.

CO-AUTHOR

5. *The JCMT BISTRO Survey: Unveiling the Magnetic Fields around Galactic Center*, Yang, Meng-Zhe., Lai, Shih-Ping., Karoly, Janik., Pattle, Kate., et al. (including **Akshaya M. S.**), **ApJ**, 2025, 983, 184.
6. *The Diffuse Ultraviolet and Optical Background: Status and Future Prospects*, Murthy J., **Akshaya M. S.**, and Ravichandran S., **arXiv:1909.05325**, 2019.

IN PREPARATION

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

REFERENCES

Prof. Jayant Murthy
jmurthy@yahoo.com
Honorary 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