Akshaya Subbanna M S

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RESEARCH INTERESTS

Construction of the three-dimensional map of the Galactic magnetic field from thermal dust polarization, molecular spectroscopy, and starlight polarization; complemented with the current understanding of dust grain alignment physics.

EMPLOYMENT

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 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

- *Dynamics of the Galactic centre and its magnetic Field* 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* Jun 2023
  SOFIA Tele-Talk Series, Online
- *Grain alignment and magnetic field at the Galactic centre* May 2023
  Mid-West Magnetic Field Meeting 2023, Online
- *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/SCUPOL/HARP/POL2, ALMA, Herschel, Pan-STARRS1
Operating Systems	Windows, Linux, Mac OS X
Models	3D Radiative Transfer, Polarized Radiation Simulator (POLARIS), Magneto-hydrodynamical Simulations post-processing (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

- *Synthetic Polarization of the Central Molecular Zone*, **Akshaya M. S** and Hoang T.

REFERENCES

Prof. Jayant Murthy
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Senior Professor
Indian Institute of Astrophysics

Dr. Ravichandran S
ravichandran.s@christuniversity.in
Associate Professor
CHRIST (Deemed to be University)
Bengaluru, India

Dr. Thiem Hoang
thiemhoang@kasi.re.kr
Principal Researcher
Korea Astronomy and Space Science Institute