

# Akshaya Subbanna M S

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## RESEARCH INTERESTS

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

## EMPLOYMENT

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**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

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**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: 3.96/4.0
- ✓ **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

Apr 2012

Jain University, Bengaluru, India

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

## AWARDS

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

## OBSERVING PROPOSALS

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### 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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- *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

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### 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

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<b>Programming</b>	IDL, Python, C, MATLAB, HTML, CSS
<b>Softwares &amp; Tools</b>	IRAF, Topcat, SAOImageDS9, VisIt, Paraview, CASA, CARTA, $\text{\LaTeX}$
<b>Datasets</b>	Galex, IRAS, Planck, SOFIA/HAWC+, JCMT/SCUPOL/HARP/POL2, ALMA, Herschel, Pan-STARRS1
<b>Operating Systems</b>	Windows, Linux, Mac OS X
<b>Models</b>	3D Radiative Transfer, Polarized Radiation Simulator (POLARIS), Magneto-hydrodynamical Simulations post-processing (Athena)

## PUBLICATIONS

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### FIRST AUTHOR

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

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

### IN PREPARATION

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

## REFERENCES

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**Prof. Jayant Murthy**

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Honorary Professor

Indian Institute of Astrophysics

**Dr. Thiem Hoang**

✉ [thiemhoang@kasi.re.kr](mailto:thiemhoang@kasi.re.kr)

Principal Researcher

Korea Astronomy and Space Science Institute

**Dr. Ravichandran S**

✉ [ravichandran.s@christuniversity.in](mailto:ravichandran.s@christuniversity.in)

Associate Professor

CHRIST (Deemed to be University)

Bengaluru, India