

Koothodil Abhijith Augustine

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Education

- 2023 – **Ph.D. in Astronomy**, Institute of Astronomy, National Tsing Hua University, Hsinchu, Taiwan
Advisor: Prof. Chang, Hisang-Kuang
- 2021 – 2023 **M.Sc. in Physics**, at The Department of Physics, Sant Longowal Institute of Engineering and Technology, Punjab, India.
Thesis title: *Exploring the JWST PRIMER Catalog: An Investigation of Infrared Galaxies.*
Advisor: Prof. S.S. Verma
- 2018 – 2021 **B.Sc. in Physics**, at The Department of Physics, University College, The University of Kerala, Thiruvananthapuram, Kerala, India.
Thesis title: *Effect of Solar Flux on Aerosol Absorption Coefficient.*
Advisor: Dr. S. Bindu

Skills

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| Languages | English, Malayalam, Telugu, Hindi and a basic proficiency in Tamil and French. |
| Coding | Python. |
| Astro. Software | XSpec, MEGAlib, Fermipy, cosipy |
| Misc. | Academic research, tutoring while in school, L^AT_EX typesetting. |

Articles

Publications

- 1 K. A. Augustine and H.-K. Chang, “Anticorrelation Between Flux and Photon Index of Hard-X-Ray Emission from the Crab,” vol. 981, no. 2, 173, p. 173, Mar. 2025. [DOI](#): 10.3847/1538-4357/adb70e. arXiv: 2408.00406 [astro-ph.HE].
- 2 D. Chatterjee, H.-K. Chang, D. Debnath, K. Abhijith Augustine, and T.-H. Lin, “Investigating the Anti-Correlation between Photon Index and Flux of the Crab using RXTE and NuSTAR,” vol. 988, no. 1, 105, p. 105, Jul. 2025. [DOI](#): 10.3847/1538-4357/ade9bd. arXiv: 2506.17899 [astro-ph.HE].

Presentations

- 1 K. A. Augustine, H.-K. Chang, D. Chatterjee, D. Debnath, and T.-H. Lin, “Anticorrelation Between Flux and Photon Index of Hard-X-Ray Emission from the Crab revealed by multiple X-ray instruments,” in *American Astronomical Society Meeting Abstracts*, vol. 247, Jan. 2026.
- 2 K. A. Augustine, H.-K. Chang, D. Chatterjee, D. Debnath, and T.-H. Lin, “Anticorrelation between flux and photon index of hard-x-ray emission from the crab revealed by multiple x-ray instruments,” in *2026 Annual Meeting of the Physical Society of Taiwan, Astrophysics, Gravity and Cosmology session*, National Chung Cheng University, Taiwan, 2026.
- 3 K. A. Augustine and H.-K. Chang, “An anti-correlation found between Photon Index and Flux in a long-term study of The Crab,” in *The 2025 Scientific Assembly of the Astronomical Society of the Republic of China (ASROC2025)*, National Formosa University, Taiwan, 2025. [DOI](#): URL: <https://indico.phys.nthu.edu.tw/event/143/contributions/596/>.

- 4 K. A. Augustine and H.-K. Chang, "An anti-correlation found between Photon Index and Flux in a long-term study of The Crab," in *Fermi Summer School (2025)*, University of Delaware Conference Center in Lewes, Delaware, 2025. ⚒ URL: https://confluence.slac.stanford.edu/spaces/LSP/pages/587602486/Fermi+Summer+School+2025?preview=/587602486/601708659/Abhi_FSS_2025.pptx#FermiSummerSchool2025-studenttalks.
- 5 K. A. Augustine and H.-K. Chang, "Anticorrelation Between Flux and Photon Index of Hard-X-Ray Emission from the Crab," in *American Astronomical Society Meeting Abstracts*, vol. 246, Jun. 2025, 411.09, p. 411.09.
- 6 K. A. Augustine, H.-K. Chang, D. Chatterjee, D. Debnath, and T.-H. Lin, "Anticorrelation Between Flux and Photon Index of Hard-X-Ray Emission from the Crab revealed by multiple X-ray instruments," in *IA Forth Seminar*, Nov. 2025. ⚒ URL: <https://www.ia.forth.gr/seminar/1405>.
- 7 K. A. Augustine and H.-K. Chang, "An anti-correlation found between Photon Index and Flux in a long-term study of The Crab," in *The 2024 Scientific Assembly of the Astronomical Society of the Republic of China (ASROC2024)*, National Changhua University of Education, Changhua, Taiwan, 2024.
- 8 K. A. Augustine and H.-K. Chang, "An anti-correlation found between Photon Index and Flux in a long-term study of The Crab," in *COSI Fest*, Space Science Laboratory, UC Berkeley, 2024.
- 9 K. A. Augustine and H.-K. Chang, "Spectral Analysis of Pulsars detected in the Swift BAT 157- Month Hard X-ray Survey," in *2024 Annual Meeting of the Physical Society of Taiwan*, Oral Contestant in Astrophysics, Gravity and Cosmology session, National Central University, Taoyuan, Taiwan, 2024. ⚒ URL: <https://tps2024.conf.tw/download/1538/File1/116593.pdf>.

Miscellaneous

Collaborations

- 2024-  **COSI**, Galactic Science team member working on Pulsars.
2025-  **BTO**, Software team member working on ground software analysis.
 **GTM**, Science team member working on the Crab.

Awards and Achievements

- 2017  **Valedictorian**, 12th standard best outgoing student at St. Mary's Higher Secondary School, Mullenkolly, Kerala, India.
-  **CIGI, Calicut**, Selected to represent 300 students at my higher secondary school to guide them in choosing their career. As part of this, attended a 5-day camp in The Center for Information and Guidance India (CIGI), Kozhikode, Kerala.
- 2015  **Valedictorian**, Proficiency Award in the 10th class for scoring the highest grades at Little Flower High School, T. Sundupalli, Andhra Pradesh, India.

Activities

- 2024  **COSI**, I am a member of the upcoming NASA's Compton Spectrometer and Imager space telescope. I work primarily on the MeV pulsars and also polarization capabilities of COSI using cosi-py.

Miscellaneous (continued)

- 2017-2023
- **Seminars**, Participated and organized multiple National and International Seminars during my undergraduate and postgraduate studies. Most of the seminars are related to multidisciplinary topics.
- 2021
- **IUCAA-ISSAA, 2021**, Participated in the Introduction Summer School Program conducted by the Inter-University Center for Astronomy and Astrophysics, Pune from 10 May to 11 June 2021.
- 2018-2021
- **WWS**, Was part of Walk With a Scholar(WWS), a mentoring program for undergraduate students. Attended lectures of many eminent scientists from ISRO., and listened to talks by numerous Civil Service Officers and Emeritus Professors from top educational institutions and research organizations.
- 2015-2017
- **NSS**, I was a part of the National Service Scheme (A scheme by Indian government public sector service program conducted by the Ministry of Youth Affairs) during Standard XII and participated in various extracurricular activities. We conducted a organ and blood donation drive, experienced green farming on first hand basis, uplifted a tribal camp etc. Attended a self organised 7-day camp of 50 students during Christmas, 2016.

Posters

- Jan 14 2025
- **TPS 2025**, "Anti-correlation between Flux and Photon Index of Hard X-ray Emission from The Crab." At the 2025 Annual Meeting of the Physical Society of Taiwan at National Sun Yat-sen University, Kaohsiung, Taiwan.
- Jan 05 2026
- **AAS 247**, "A cosy Pipeline for Pulsar Timing and Phase Resolved Spectroscopy with COSI" At the 2026 Winter Meeting of the American Astronomical Society at Phoenix, AZ, USA.

Reference

Prof. Chang Hsiang-Kuang

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Prof. S. S. Verma

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