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Ayisha M. Ashruf

SKILLS & ABILITIES

Good at coding in Python, C, C++, Matlab programming languages

Worked with astronomical softwares ds9, IRAF and Cloudy

Familiar with IDL, GREG Gildas and TracePro

EXPERIENCE

Scientist/Engineer 'SC' , Space Physics Laboratory, Vikram Sarabhai Space Centre, Thiruvananthapuram | October 2021 - Present

Working on developing payloads as part of the Ionosphere Thermosphere Magnetosphere Physics branch under Dr. C Vineeth. Currently involved in the development of the proposed UrVASI payload on board the upcoming DISHA mission and ATOXS payload under development for the PS4 Orbital Platform. Work involves developing codes to aid the design and analyzing optical designs with softwares like TracePro.

Scientist/Engineer 'SC' , Space and Atmospheric Sciences Division, Physical Research Laboratory, Ahmedabad | September 2019 - October 2021

Worked on Space-borne instrumentation as part of the Space Weather group under Dr. Dibyendu Chakrabarty. Involved in the development of Langmuir Probe and Airglow Photometer payloads for the upcoming DISHA mission and the development of the Narrowband oxygen Airglow detection in Venusian Atmosphere (NAVA) payload for the Venus mission. The work involved coding, running ionospheric models (IRI, MSIS) and particle-in-cell simulations to aid the design. Also developed software modules for the data pipeline for STEPS subsystem of the ASPEX payload on board Aditya-L1.

Masters Thesis | 01 June 2018 - 30 May 2019 | Guides: Prof. Swarna K. Ghosh, TIFR and Dr. Sarita Vig, Associate Professor, Dept. of Earth and Space Sciences, IIST

The [CII] 158 μm fine structure line emission in the massive star forming region NGC 2024 was observed using the Fabry Perot Spectrometer installed at the focal plane of TIFR 100 cm balloon-borne telescope. The data from the pipeline was then processed to extract the line and continuum intensity distributions using python codes. GREG Gildas was used to make the intensity distribution maps of the region.

Properties of Dual Nuclei and Merging Galaxies | 1 December 2017 - 28 December 2017 | Guide: Prof. Mousumi Das, Indian Institute of Astrophysics, Bengaluru

Studied the star formation rates in a sample of interacting galaxies and confirmed dual AGN. The magnitudes in various filters were taken from SDSS Data Release 14. The data analysis was done mainly using MATLAB codes.

Quasar Absorption Spectroscopy | 05 June 2017 - 20 July 2017 | Guide: Dr. Anand Narayanan, Associate Professor, Dept. of Earth and Space Sciences, IIST

Used quasar absorption spectroscopy to study a High Velocity Cloud analog in a galaxy at redshift around 0.1 along the line of sight PG1424+240. Cloudy was used to obtain a photo-ionization equilibrium model of the absorber. The modeling was done mainly using standard IDL codes.

Interface for Cloudy | 01 June 2016 - 05 July 2016 | Guide: Dr. Anand Narayanan, Associate Professor, Dept. of Earth and Space Sciences, IIST

Developed an interface for the spectral synthesis code Cloudy using C++ and Gnuplot.

TMT India - Workshop | 11 June 2015 - 13 June 2015 | Dept. of Earth and Space Sciences, IIST

Took part in TMT- India Science and Instrumentation Workshop held at Indian Institute of Space Science and Technology

**Introductory Project | 01 December 2014 - 15 December 2015 | Guide:
Dr. Anand Narayanan, Associate Professor, Dept. of Earth and Space
Sciences, IIST**

Reproduced the Hubble Redshift-Distance Relationship and determined
the dynamical mass of galaxy clusters

EDUCATION

Dual Degree – M.S. Astronomy and Astrophysics, B.Tech. Engineering
Physics | August 2014 - June 2019

Indian Institute of Space Science and Technology, Valiamala,
Thiruvananthapuram – 695547

CGPA – 8.1

AISSCE | March 2014

St. Antony's Public School and Junior College, Anakal, Kanjirapally,
Kerala

Score - 97.6 %

AISSE | March 2012

St. Antony's Public School and Junior College, Anakal, Kanjirapally,
Kerala

CGPA - 10

HOBBIES AND INTERESTS

I have always enjoyed gazing at the night sky, trying to identify the
constellations and pondering what is out there. I love sketching and
painting which I feel helps me better express my emotions and feelings. I
am also a voracious reader, my preferences varying from history to
fantasy to science fiction.



आयशा एम अशरफ

वैज्ञानिक / अभियंता - 'एससी'
अंतरिक्ष भौतिकी प्रयोगशाला
विक्रम साराभाई अंतरिक्ष केंद्र
भारतीय अंतरिक्ष अनुसंधान संगठन
अंतरिक्ष विभाग, भारत सरकार
तिरुवनंतपुरम-695022

आयशा एम अशरफ

वैज्ञानिक / अभियंता

शैक्षणिक योग्यता

दोहरी डिग्री - एमएस. खगोल तथा खगोल भौतिकी, बीटेक. अभियांत्रिकी भौतिक
विज्ञान | अगस्त 2014 - जून 2019
भारतीय अंतरिक्ष विज्ञान और प्रौद्योगिकी संस्थान (आईआईएसटी), तिरुवनंतपुरम
सीजीपीए - 8.1

ए आई एस एस सी ई | मार्च 2014
सेंट एंटनीज पब्लिक स्कूल, कांजीरापल्ली
स्कोर - 97.6%

ए आई एस एस सी ई | मार्च 2012
सेंट एंटनीज पब्लिक स्कूल, कांजीरापल्ली
सीजीपीए - 10

व्यावसायिक अनुभव

वैज्ञानिक / अभियंता - 'एससी'
अंतरिक्ष भौतिकी प्रयोगशाला, विक्रम साराभाई अंतरिक्ष केंद्र, तिरुवनंतपुरम | अक्टूबर
2021 - वर्तमान

वैज्ञानिक / अभियंता - 'एससी'
भौतिक अनुसंधान प्रयोगशाला, अहमदाबाद | सितंबर 2019 - अक्टूबर 2021

मास्टर्स थीसिस
मार्गदर्शक: प्रो स्वर्ण के. घोष, टीआईएफआर और डॉ सरिता विग, एसोसिएट प्रोफेसर, पृथ्वी
विभाग और अंतरिक्ष विज्ञान, आईआईएसटी | जून 2018 - मई 2019