

GANESH PAWAR

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EDUCATION

Department of Physics, University of Mumbai, India

Master of Science, Physics

CGPA 7.63/10

Aug. 2018 – Oct. 2020

K. J. Somaiya College of Science and Commerce, Mumbai, India

Bachelor of Science, Physics

CGPA 5.58/7

Jul. 2015 – May 2018

RESEARCH EXPERIENCE

i. Stellar activity of ‘B, A and F’ type stars.

Present

ARIES, Nainital, India

- TESS Lightcurve Data is used to generate clean lightcurves with 5-sigma clipping to removing the jumps and outliers and LombScargle algorithm was used to find the dominating pulsating frequencies.
- I have reduced the spectroscopic data taken from 2.0-m IUCAA Girawali Observatory by writing a python script to study variations in Equivalent Widths and I am using synthetic spectrum to find projected rotational velocity.

ii. Pluto’s enigmatic atmosphere based on stellar occultation.

Present

Akashmitra Mandal, Kalyan, India

NIR and visible observations of June 6, 2020, stellar occultation from the DOT, ARIES and HCT, IIA.

- The event was successfully observed in the H-band with TIRCAM2 mounted on the 3.6-m Devasthal Optical Telescope(DOT), while the optical observations were made in I-band with 1.3m Devasthal Fast Optical Telescope.
- Previous observations has shown increase in atmospheric pressure between 1988 and 2016, due to sublimation of N₂ ice in the glacier of Sputnik Planitia on Pluto which expanded its atmosphere and current climatic models predict that this expansion should stop by now, which is in agreement with our observation. This work is under preparation for publication in a refereed Journal.

iii. Observation of Stellar occultations by an Asteroid.

2019-2020

Akashmitra Mandal, Kalyan, India

- As a part of the team, I have observed and analyzed lightcurves of 14 Stellar occultations out of which 9 events were positive and 5 were negative.
- The PSF photometry was done for data reduction using Limove, Pymovie and PYOTE to find their time of disappearance and reappearance.
- Reports were submitted to International Occultation Timing Association.

iv. DSLR photometry of a δ Scuti variable star.

2017

Akashmitra Mandal, Kalyan, India

A High Amplitude δ Scuti star, AD CMi for 3 hours using 20 cm aperture reflector telescope and with a standard Canon DSLR camera.

- RGB RAW data were split into individual R, G and B channel.
- Dark, bias and flat corrections were made to the raw data.
- Instrumental magnitudes for comparison and target star were reduced by IRIS.
- The DSLR green channel magnitudes were converted to Standard V-magnitude.
- Lightcurve was submitted to the AAVSO database and the variability period was reduced to be 2.513 hours.

X-Ray study of Active Galactic Nuclei.

August, 2019 – August, 2020

Department of Physics, University of Mumbai

- We have surveyed the available data for AGN of various classes from Chandra Data Archive.
- The corresponding X-ray data from the Chandra Data Archive was obtained and the X-ray spectra were extracted and preprocessed using Chandra Interactive Analysis of Observations (CIAO) which has also integrated by writing a BASH script to do the task in one go, corrected it for red-shift by writing python scripts.
- We found some common features which are quite easily visible from the spectrum and studied atomic radiative and collisional processes which leads to emission of X-rays in astrophysical sources.

PUBLICATIONS**Measurements of 60 Double Star Systems Using a Small Telescope and Four Different Methods***Deshmukh, S., Deshpande, A., Pawar, G., et al. 2019, Journal of Double Star Observations, 15, 1, p. 193.*

OBSERVING RUNS

Stellar occultations by Dwarf Planets, TNOs and Centaurs, 3.6m Devasthal Optical Telescope (DOT),
cycle: DOT-2020-C2, as Co-I. PI: Prof. N. M. Ashok.

Rotational state of the elusive Lucy targets, 2-m Himalayan Chandra Telescope (HCT),
cycle: HCT-2020-C3, as Co-I. PI: Prof. N. M. Ashok.

WORKSHOPS/SCHOOLS**Heidelberg Summer School 2021**

September 13-17, 2021

*Stellar Ecosystems**IMPRS-HD***TESS Science Conference-II**

August 2-6, 2021

*MIT***PHysics Of Eclipsing BinariEs Virtual Workshop**

June, 2021

*PHOEBE***AAVSO Spectroscopy Workshop**

November 6-8, 2020

*American Association of Variable Star Observers(AAVSO)***Regional Astronomy Meeting-VI**

July 9-10, 2020

*Research in Astronomy: Opportunities and Challenges**IUCAA***Carolyn Hurless Online Institute for Continuing Education(CHOICE) Course**

June, 2020

*How to use VStar**AAVSO***CHOICE Course**

May, 2020

*Exoplanet Observing**AAVSO***Gravitational-Wave Open Data Workshop 3**

May 26-28, 2020

*Gravitational Wave Open Science Center(GWOSC)***ARIES Training School in Observational Astronomy(ATSOA)**

March, 2019

*Project title: Differential photometry of the Narrow line Seyfert-I galaxy 1H 0323+342.**ARIES, Nainital, India***IAPT Summer School**

April, 2017

*Theoretical Physics**IAPT***Certificate Course**

2015

*Astronomy and Astrophysics**Centre for Extra-Mural Studies, University of Mumbai*

TECHNICAL SKILLS

Languages: Python and C++.

Operating System: Linux (CentOS, Fedora & Ubuntu) and Windows.

Plotting Software: GNUPlot and OriginLab.

Image Overlay software: Aladin, Limovie and SAO Image DS9.

Data reduction software: AstroImageJ, CIAO, IRAF, IRIS, iSpec, PYOTE, TOPCAT and VStar.

Libraries: astropy, astroquery, matplotlib, numpy, and pandas.

Other: L^AT_EX and Microsoft Office.

EXTRA-CURRICULAR ACTIVITIES

Asteroid Search Campaign by IASC: Participated in an asteroid search campaign held by International Astronomical Search Collaboration, 2020.

Volunteer for CERN at Vigyan Samagam: Volunteered for the CERN exhibits during the Vigyan Samagam mega science exhibition in Mumbai, 2019.

Hobbies and Activities: Watching Sci-Fi movies, reading science blogs, travelling, trekking, playing football and member of AkashMitra Mandal, Kalyan (Amateur Astronomers' Organization).

REFERENCES

Dr. Santosh Joshi - Scientist-E, ARIES, Nainital.

Email: santosh@aries.res.in

Prof. Hum Chand - Dean, School of Physical and Material Sciences, Central University of Himachal Pradesh.

Email: humchand@hpcu.ac.in

Prof. N. M. Ashok - Former Senior Professor, Physical Research Laboratory, Ahmedabad.

Email: ashoknagarhalli@gmail.com