Ganesh Pawar

+917588311820 | pawarganesh1076@gmail.com | linkedin.com/in/pawarganesh1076

EDUCATION

Department of Physics, University of Mumbai, India CGPA 7.63/10

Master of Science, Physics *Aug. 2018 – Oct. 2020*

K. J. Somaiya College of Science and Commerce, Mumbai, India CGPA 5.58/7

Bachelor of Science, Physics *Jul. 2015 – May 2018*

RESEARCH EXPERIENCE

i. Stellar activity of 'B, A and F' type stars. Present
ARIES, Nainital, India

- TESS's Pre-search Data Conditioning Simple Aperture Photometry (PDCSAP) is used to generate lightcurves with 5-sigma clipping to clean the jumps and outliers and LombScargle periodogram was used to find the dominating pulsating frequencies.
- We have studied evolutionary state of these stars.
- I have also analyzed spectroscopic data taken from 2.0-m IUCAA Girawali Observatory by generating a normalized spectrum to find its equivalent width and 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.

- This event was successfully recorded in the H-band using TIRCAM2 mounted on the 3.6-m Devasthal Optical Telescope(DOT), while the optical light curve in the I-band was observed with 1.3m Devasthal Fast Optical Telescope. Observations from the Himalayan Chandra Telescope(HCT) were not successful due to thick cloud coverage.
- Stellar occultations by Pluto observed between 1988 and 2016 showed that atmospheric pressure increased, due to sublimation of N_2 ice in the glacier of Sputnik Planitia on Pluto which expanded its atmosphere and current climatic models predict that this expansion should now stop, leading to a gradual decline of Pluto's atmosphere which is expected. 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. Measurement of double star's Angular Separation and Position Angle. 2018
Akashmitra Mandal, Kalyan, India

Imaging of 60 southern double stars from the Washington Double Star(WDS) catalog was undertaken using 20 cm reflector telescope and a standard DSLR camera and the measurements were made using four different methods post plate solving each image.

- The data was platesolved using nova.astrometry.net utility.
- Current Angular Separation and Position Angle (PA) of selected stars were measured.
- Aladin, AstroImageJ, SAO DS9 and Trigonometric methods were used for measurement.
- The results were then averaged with their corresponding standard deviations.

v. 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.

M.Sc. Project

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
S. Deshmukh, A. Deshpande, **G. Pawar**, G. Joshi, S. Bhat, R. Vaze, *Journal of Double Star Observations,*
Vol. 15 No. 1, p. 193-202, 2019.

Workshops/Schools

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*

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).

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, PYOTE, TOPCAT and VStar.

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

Other: LaTeX and Microsoft Office.

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