

Gajanan Dnyaneshwar Harale, Ph.D. (Pursuing)

Present position

- Assistant Professor

Contact Details (Mention e-mail) – fergusson.edu or despune.org



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Work Experience

- Teaching: 5 years
- Research/Industrial: 8 years

Personal Profile

I work mainly in the area of High Energy Astrophysics. My specific interests in galaxy cluster merger. Beside this I am interested in numerical methods for various purposes required in data analysis.

Course(s) Taught (Only Titles)

1. Mechanics and Properties of Matter
2. Electricity and Magnetism
3. Physics Practical – I
4. Physics Practical - II
5. Principles and Applications of Optics
6. Practical Practical - III
7. Practical Practical – IV
8. Numerical Analysis
9. Quantum Mechanics
10. Computational Physics
11. Astronomy & Astrophysics
12. PHYSICS PRACTICAL LABORATORY - VI: Computational Lab.
13. Physics Practical Laboratory –IV (Astrophysics + Atmospheric Science + MATLAB)

Field of Specialization/Areas of Interests

- Astronomy and Astrophysics observational and Theoretical
- High Energy Cosmic ray physics, galaxy clusters, dynamics of clusters
- Data analysis

Education

- **Ph.D. – (Physics-Astronomy and Astrophysics):** from 2016 to present
Title of the Thesis: Study of emission of ultra high energy cosmic ray's from the non linear dynamics of the large Scale Structure.
Name of University / Institution: Department of Physics S. P. Pune University, Pune
Year of Award---- Pursuing
- **Master of Science/Arts- (subject name):** 2014
University/College- Department of Physics S. P. Pune University, Pune
- **Bachelor of Science- (subject name):** 2012
College, University, Place -Vidya Bharati Mahavidyalaya Amravati, Sant Gadge Baba Amravati University, Amravati

Fellowship/Awards/ Certifications/Achievements/Recognitions

1. Summer Research Fellowship at IIA Bangalore 2013
2. Junior Research Fellowship 2015
3. Best Poster Presentation Award at Raman Memorial Conference, Pune 2015
4. Best Oral Presentation Award at Raman Memorial Conference, Pune 2021
5. Induction Programme at IISER 2018
6. Astronomical Data analysis using Python 8th November 2021 to 18th December 2021
7. ISRO – outreach co-ordinator (at College Level) 2020- present
8. “Innovative Teaching And Research in Science: Exploring The New Horizons” - 10th – 15th June 2021
9. One Week Faculty Development Program on ‘Arduino’ - organized by Department of Electronics, Bajaj College of Science, Wardha in association with Spoken Tutorial Project, IIT Bombay from 28th April 2020 to 4th May 2020.

Course	Institute	Year	Role
Remote Sensing Applications in Agricultural Water Management	IIRS-ISRO	2019-2020	Coordinator
Application of Geoinformatics in Ecological Studies	IIRS-ISRO	2019-2020	Coordinator
Understanding of Coastal ocean processes using Remote Sensing and Numerical Modelling	IIRS-ISRO	2020-21	Coordinator
Geoinformatics for Disaster Management	IIRS-ISRO	2020-21	Coordinator
GIS for Supply Chain Management	IIRS-ISRO	2020-21	Coordinator
Remote Sensing Applications in Agricultural Water Management	IIRS-ISRO	2020-21	Coordinator
Basics of Remote Sensing Geographical Information System and Global Navigation Satellite System	IIRS-ISRO	2020-21	Coordinator
Remote Sensing and Digital Image Analysis	IIRS-ISRO	2020-21	Coordinator
Global Navigation Satellite System	IIRS ISRO	2020-21	Coordinator
Geographical Information System	IIRS-ISRO	2020-21	Coordinator
RS & GIS Applications	IIRS-ISRO	2020-21	Coordinator
Advances in SAR-Polarimetry & Interferometry	IIRS-ISRO	2020-21	Coordinator
Basics of Geocomputation and Geoweb Services	IIRS-ISRO	2020-21	Coordinator
Geospatial Modelling for Watershed Management	IIRS-ISRO	2021-22	Coordinator

Geospatial technology for hydrological modelling	IIRS-ISRO	2021-22	Coordinator
Basics of Geocomputation and Geoweb Services	IIRS-ISRO	2021-22	Coordinator
Advances in SAR-Polarimetry & Interferometry	IIRS-ISRO	2021-22	Coordinator
RS & GIS Applications	IIRS-ISRO	2021-22	Coordinator
Geoinformatics for Disaster Management	IIRS-ISRO	2021-22	Coordinator

Member of College Committees/ Professional Bodies and Others

College Level	Professional Bodies	Others
<ul style="list-style-type: none"> International tie up Board of Studies 	Society of Biological Chemists	
<ul style="list-style-type: none"> F.Y. B. Sc. Admission Committee F. Y. B. Sc. Theory Incharge 		
<ul style="list-style-type: none"> ISRO Outreach 		
<ul style="list-style-type: none"> M. Sc. Entrance 		
<ul style="list-style-type: none"> ERP 		
<ul style="list-style-type: none"> Extra Credit Course at Department level 		

1) Organization : Department of Physics Savitribai Phule University, Pune

Role : Research Assistant

Duration : March 2014 to August 2015

Responsibilities	<ul style="list-style-type: none"> Comparison study of acceleration mechanism
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2) Organization : Department of Physics Savitribai Phule University, Pune

Role : Junior Research Fellow

Duration : September 2015 to June 2017

Responsibilities	<ul style="list-style-type: none"> Data analysis Study of gamma ray emission
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Participation in Conferences/Seminars/Symposia/Workshop:

- Talk on “ Role of 2nd order Fermi acceleration Mechanism in production of high energetic cosmic ray particles at Raman Memorial Conference 2021, Pune
- Talk on “ Role of 1st order Fermi acceleration Mechanism in production high energy Particles” YAM (Young Astronomer Meet) IUCAA, Pune, 2018
- Poster Presented on “Forming galaxy clusters are the major source of cosmic neutrinos and ultra high energy particles” at Raman Memorial Conference -2015 , PunePoster presentation in the Astronomical Society of India (ASI) meeting, 17-20 February, 2015 NCRA, Pune, India.
- Raman Memorial Conference at Department of Physics, 11-12 February 2015, SP Pune University, India.
- The Multiwavelength Astronomical Data, Analysis and Visualisation and Virtual Observatory on 16 th February 2015 at IUCAA, Pune, India.
- Workshop on design aspects of biomedical instruments, 29 August 2011 at Brijlal Biyani Science College, Amravati, India.

Events Organized/Coordinated:

Sr. No	Name of the Event	Name of organizing Institute/ College/ University	Nature of contribution	Dates
1	Summer School -2022	Fergusson College (Autonomous) Pune	Organizer and Program Coordinator	July -2022
2	Extra credit course on Basic IPython	Fergusson College (Autonomous) Pune	Organizer and Program Coordinator	March 2022

Additional skills/Activities

1. Imaging <ul style="list-style-type: none"> a. CASA: Imaging b. Fermitools: Gamma Imaging c. HEASoft: Imaging d. Fermipy: X-Ray Imaging e. IRAM: X-ray spectral analysis f. Astropy 	2. Modelling Software <ul style="list-style-type: none"> a. Arduino b. MatLab
3. Programming Language <ul style="list-style-type: none"> a. Fortran 99 b. Python c. Matlab d. Mathematica 	4. Instrumentation Skills <ul style="list-style-type: none"> a. Telescopes b. CCD c. Photometer

Role: Nodal Centre Coordinator

Course	Institute	Year	Nodal Centre
Remote Sensing Applications in Agricultural Water Management	IIRS-ISRO	2019-2020	Fergusson College (Autonomous) Pune-4
Application of Geoinformatics in Ecological Studies	IIRS-ISRO	2019-2020	Fergusson College (Autonomous) Pune-4
Understanding of Coastal ocean processes using Remote Sensing and Numerical Modelling	IIRS-ISRO	2020-21	Fergusson College (Autonomous) Pune-4
Geoinformatics for Disaster Management	IIRS-ISRO	2020-21	Fergusson College (Autonomous) Pune-4
GIS for Supply Chain Management	IIRS-ISRO	2020-21	Fergusson College (Autonomous) Pune-4
Remote Sensing Applications in Agricultural Water Management	IIRS-ISRO	2020-21	Fergusson College (Autonomous) Pune-4
Basics of Remote Sensing Geographical Information System and Global Navigation Satellite System	IIRS-ISRO	2020-21	Fergusson College (Autonomous) Pune-4
Remote Sensing and Digital Image Analysis	IIRS-ISRO	2020-21	Fergusson College (Autonomous) Pune-4

Global Navigation Satellite System	IIRS_ISRO	2020-21	Fergusson College (Autonomous) Pune-4
Geographical Information System	IIRS-ISRO	2020-21	Fergusson College (Autonomous) Pune-4
RS & GIS Applications	IIRS-ISRO	2020-21	Fergusson College (Autonomous) Pune-4
Advances in SAR-Polarimetry & Interferometry	IIRS-ISRO	2020-21	Fergusson College (Autonomous) Pune-4
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Geoinformatics for Disaster Management	IIRS-ISRO	2021-22	Fergusson College (Autonomous) Pune-4

Course Content Developed (e-content)

1. Mechanics and properties of Matter
2. Electricity and Magnetism
3. Numerical Analysis