



CHETANA JAIN
CURRICULUM VITAE



Title	Professor	First Name	Chetana	Last Name	Jain
Designation	Professor				
Department	Physics				
Address	Department of Physics, Hansraj College, University of Delhi.				
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Educational Qualifications					
<ul style="list-style-type: none">• Ph. D., 2010, Department of Physics and Astrophysics, University of Delhi• M. Sc. Physics, 2005, Hansraj College, University of Delhi• B. Sc. (H) Physics, 2003, Hansraj College, University of Delhi					
Teaching Experience					
<ul style="list-style-type: none">• August 2021 onwards: Professor, Hansraj College, University of Delhi• August 2018 - August 2021: Associate Professor, Hansraj College, University of Delhi• July 2010 - August 2018: Assistant Professor, Hansraj College, University of Delhi (Permanent)					
Specialization/ Area of Interest					
Specialization: Electronics and Astrophysics					
Research Interest:					
<ul style="list-style-type: none">• Orbital Evolution of X-ray Binaries• Pulse profile evolution• Broad band X-ray Spectroscopy					
Publications					
JOURNAL ARTICLES					
Broadband mHz QPOs and spectral study of LMC X-4 with AstroSat Sharma, R., Jain, C. * , Rikame, K. & Paul, B., 2023, MNRAS, 519, 2, 1764					
Eclipse Timings of the LMXB XTE J1710-281: discovery of a third orbital period glitch Jain, C. * , Sharma, R., & Paul, B., 2022, MNRAS, 517, 2, 2131					
Broad-band spectral analysis of LMXB 2S 0921-63 with Suzaku Sharma, P., Jain, C. * , & Dutta, A., 2022, MNRAS, 517, 1, 825					
Change in spin-down rate and detection of emission line in HMXB 4U 2206+54 with AstroSat Jain, C. * , Yadav, A., & Sharma, R., 2022, JAA, 43, 2, 101					
Discovery of cyclotron and narrow Fe K α lines in HMXB GRO J1750-27 Sharma, P., Jain, C. * , & Dutta, A., 2022, MNRAS, 513, 1, L94					
Timing and Spectral Analysis of HMXB OAO 1657-415 with NuSTAR Sharma, P., Sharma, R., Jain, C. * , & Dutta, A., 2022, MNRAS, 509, 4, 5747					
Broad-band spectral study of LMXB black hole candidate 4U 1957+11 with NuSTAR Sharma, P., Sharma, R., Jain, C. * , Dewangan, G. C., & Dutta, A., 2021, RAA, 21, 9, 214					
Broad-band spectral analysis of LMXB XTE J1710-281 with Suzaku Sharma, P., Sharma, R., Jain, C. * , & Dutta, A., 2020, MNRAS, 496, 1, 197					
Study of the reflection spectra of SAX J1748.9-2021 Sharma, R., Jain, C. * , & Dutta, A., 2019, MNRAS, 482, 2, 1634					
Spectral properties of MXB 1658-298 in the low/hard and high/soft state Sharma, R., Jaleel, A., Jain, C. * , Pandey, J. C., Paul, B., & Dutta, A., 2018, MNRAS, 481, 4, 5560					
Thermonuclear X-ray burst of MXB 1658-298 with <i>NuSTAR</i> Sharma, R., Jaleel, A., Jain, C. * , Paul, B., & Dutta, A., 2018, JAA, 39, 1, 16					
Indication of a massive circumbinary planet orbiting the Low Mass X-ray Binary MXB 1658-298 Jain, C. * , Paul, B., Sharma, R., Jaleel, A., & Dutta, A., 2017, MNRAS, 468, 1, L118					
Torque reversals and pulse profile of the pulsar 4U 1626-67 Beri, A., Jain, C. * , Paul, B., & Raichur, H., 2014, MNRAS, 439, 2, 1940					

Pulse profile stability of the Crab pulsar

Jain, C. * & Paul, B., 2011, RAA, 11, 10, 1134

Search for pulsations in the LMXB EXO 0748-676.

Jain, C. * & Paul, B., 2011, RAA, 11, 5, 577

Eclipse Timings of the LMXB XTE J1710-281: Orbital Period Glitches.

Jain, C. * & Paul, B., 2011, MNRAS, 413, 1, 2

New measurement of orbital and spin period evolution of the Accretion Disk Corona source 4U 1822-37.

Jain, C. *, Paul, B., & Dutta, A., 2010, MNRAS, 409, 2, 755

An X-ray Bright Nucleus in the Low Surface Brightness Galaxy UGC 6614.

Naik, S., Das, M., **Jain, C.** & Paul, B., 2010, MNRAS, 404, 4, 2056

Spectral and temporal changes associated with flux enhancement in 4U 1626-67.

Jain, C. *, Paul, B., & Dutta, A., 2010, MNRAS, 403, 2, 920

Orbital X-ray modulation study of three supergiant HMXBs.

Jain, C. *, Paul, B., & Dutta, A., 2009, RAA, 9, 12, 1303

Discovery of short orbital period in Supergiant Fast X-ray Transient IGR J16479-4514.

Jain, C. *, Paul, B., & Dutta, A., 2009, MNRAS, 397, 1, L11

Orbital evolution measurement of the accreting millisecond X-ray pulsar SAX J1808.4-3658.

Jain, C. *, Dutta, A., & Paul, B., 2007, JAA, 28, 4, 197

Pulse phase dependence of the magnetar bursts

Jain, C. *, Dutta, A., & Paul, B., 2007, JAA, 28, 4, 185

Search for orbital motion of the pulsar 4U 1626-67: Candidate for a neutron star with a supernova fallback accretion disk.

Jain, C. *, Paul, B., Joshi, K., Dutta, A., & Raichur, H., 2007, JAA, 28, 4, 175

ARTICLES IN CONFERENCE PROCEEDINGS

Orbital evolution of low mass X-ray binaries 4U 1822-37, XTE J1710-281, MXB 1658-298

Paul, B., & **Jain, C.** 2010, in The First Year of MAXI, 26

Orbital evolution of X-ray binaries and quasi-periodic oscillations in X-ray pulsars.

Paul B., Raichur H., **Jain C.**, James M., Devasia J., & Naik S., 2011, ASI Conference Proceedings, 3, 29

ASTRONOMER'S TELEGRAM

A torque reversal to spin-up in 4U 1626-67. **Jain, C.*** & Paul, B., 2009, ATel 2095

Detection of periodic X-ray modulation of SFXT IGR J16207-5129 in the Swift-BAT light curve.

Jain, C.*, Paul, B. & Maitra, C., 2011, ATel 3785

OTHER ARTICLES

Stellar and Pulsar Classification using Machine Learning

Talwar, J., Jain, P., **Jain, C.***, & Kaur, B., 2021, Hans Shodh Sudha, 1, 4, 71

Understanding the COVID -19 pandemic using Machine Learning techniques

Bhatnagar, M., Garg, S., & **Jain, C.***, 2021, Vigyan Prakash, 19, 4, 18

Books/ e-content

Book titled, '*Principles of Electromagnetic Theory*', Narosa Publishing House.

Book titled, '*Computing in Scilab*', Cambridge University Press

E-lessons for Virtual Learning Environment, Institute of Life Long Learning, University of Delhi

ISSN 2349-154X

- Magnetic Force
- Magnetic parameters in matter, magnetization, magnetic field, susceptibility, permeability
- B-H Curve , hysteresis
- Basic Theory of Ballistic Galvanometer
- Basic parameters associated with the Ballistic Galvanometer
- Conservation of energy, momentum and angular momentum of electromagnetic fields

Supervision

Ph. D. Supervision

Two students are pursuing their Ph. D. under my supervision at Department of Physics and Astrophysics

Supervision of Under-Graduate Projects

- DBT Sponsored Project on 'Theory of Errors' (AY 2015 - 2016)
- DBT Sponsored Interdisciplinary Project on 'Finding dielectric constant of glass' (AY 2016 - 2017)
- DBT Sponsored Project on 'Study of RC network response' (AY 2016 - 2017)
- DBT Sponsored Project on 'Construction of basic function generator' (AY 2016 - 2017)
- DBT Sponsored Interdisciplinary Project on 'Estimation of Sugar Content' (AY 2017 - 2018)
- DBT Sponsored Project on 'Magnetic Hysteresis' (AY 2017 - 2018)
- Understanding the mysteries of X-ray pulsars (AY 2020 - 2021)
- SED of supernova remnants (AY 2021 - 2022)

Research Projects

Academic Year: 2013 – 2015

PI of Innovation Project on 'Understanding the physical and geometrical behaviour of differential equations and its applicability to the real world'. Sponsored by DU.

Academic Year: 2020 - 2024

Co-PI in an on-going international project co-funded by Erasmus+ program of the European Union

Academic Year: 2021 - 2022

Co-PI in project funded under the Faculty Research Programme of IoE, DU.

Academic Year: 2022 - 2023

PI of an on-going project funded by College Research Council

Co-PI in an on-going project funded under the Faculty Research Programme of IoE, DU.

Workshop/ Seminar/ Conference/ Webinar Organized

WORKSHOP

- 'Basic Blood and Biochemical Parameters of Human Health' on 07th September 2017
- 'Introduction to SciLab' during 22nd – 23rd September 2017
- 'Physics Unplugged' on 13th February 2021
- 'Social Networking: The Gen Z Power Recruitment Tool' on 27th – 28th February 2021, under the Mahatma Hansraj Faculty Development Centre of Hansraj College
- 'Internationalisation of curriculum', on 17th July 2021 (Online, Institutional Level)
- 'Internationalisation of curriculum', on 3rd July 2021 (Online, Regional Level)
- 'Internationalisation of curriculum: Profiles of global professionals' on 17th September 2022
- 'Internationalisation of curriculum: Profiles of global professionals' on 12th March 2022

SUMMER SCHOOL

Deputy Coordinator for the 'DU Pre-Entrance Summer School' for students from backward and economically weaker sections (EWS) organized by ILL, University of Delhi during 07th – 22nd June 2017

WINTER SCHOOL

Organizing Committee: Winter School 2021 on 'Understanding Crystal Structure by X-Ray Diffraction', during 31st December 2021 to 08th January 2022.

FACULTY DEVELOPMENT/INDUCTION PROGRAMMES

- FDP on 'Embedded systems and synthesis of nano-materials' during 06th – 07th January 2017
- FDP on 'Digital Literacy: An Introduction to ICT Skills' during 15th – 17th September 2017
- One Week in 'Faculty Induction Program' during 17th June to 16th July 2019
- International FDP on 'Materials Characterization: Experimental and Theoretical Aspects' during 20th - 24th September 2021

SEMINAR

- 'Radiation Hazards and Monitoring: Techniques and Materials' by Prof. P. D. Sahare on 10th April 2017
- 'Spherical Chicken in Vacuum: An unconventional path to a scientific career' by Ms. Garima Malik on 5th January 2022

WEBINAR

- 'Observing the wonder world using fluorescence spectroscopy and microscopy' by Dr Sobhan Sen on 11th May 2020
- 'Challenges, Opportunities and the Way forward for Entrepreneurs & Startups in the Present Times' by Sh. Rajiv Chawla on 19th July 2020
- 'Women Entrepreneurship' by Ms. Richa Pandey Mishra on 23rd August 2020
- 'Aerial Robotics and Unmanned Systems' by Lt. Cdr. John Livingstone on 10th October 2020
- 'Research and Innovation at Undergraduate Level' by Prof. Pankaj Tyagi on 25th February 2021

Online Competition on 'Covid-19: Awareness Program' during 13th – 18th May 2020

ONLINE COURSE

'Introduction to Machine Learning for Physics and Electronics' during 01st – 15th August 2020

SYMPOSIUM

Online International symposium on Nuclear Energy Solutions and Future Aspects during 16th -17th March 2023 (Steering Committee)

Outreach Activity (Resource Person/ Lecture Delivered)

- TGT Teachers Training at BBPS Training Centre, Bal Bharati Public School, Pitampura, Delhi in May 2017
- DU Pre-Entrance Summer School, for students from backward and economically weaker sections (EWS) organized by ILL, DU from 07-06-2017 to 22-06-2017
- DU-Pre Entrance Summer School, for students from backward and economically weaker sections (EWS) organized by ILL, DU from 01-06-2018 to 16-06-2018
- PEP Physics Workshop for PGT Teachers of Class XI and XII, Kulachi Hansraj Model School, Delhi in July 2018
- Workshop on 'Development of Video Guide on the use of Upper primary Science Kit in Division of Educational Kits', NCERT, Delhi, in January-February 2019
- Workshop on 'Revision of Specification of Kit items (Science and Mathematics)', NCERT, Delhi, in September 2019
- Workshop on 'Development of Manuscript of Video Guide on the use of Secondary Science Kit', NCERT, Delhi in February 2020
- National Webinar on 'Cosmological Ladder', organized by Rajapalayam Rajus' College in June 2020
- Webinar on 'Frontiers in Astrophysics', organized by Bishop Heber College in November 2020
- Webinar on 'A glimpse of X-ray data analysis', organized by Nehru Planetarium, Delhi on National Science Day 2021.