

Curriculum Vitae

Poonam Chandra NCRA-TIFR, Pune

1 Contact Information

National Centre for Radio Astrophysics
Tata Institute of Fundamental Physics
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2 Citizenship

Indian

3 Education

Ph.D., Astrophysics, 1999 – 2005, Joint Astronomy Programme of Indian Institute of Science, Bangalore at Tata Institute of Fundamental Research (TIFR), India

Thesis Title: *Circumstellar Interaction in young supernovae: Inputs from radio and X-ray wavelengths*, Adviser: Professor Alak Ray, TIFR, Mumbai

L.L.B., Law, 1997 – 1999, Aligarh Muslim University, India

M.Sc., Physics, 1995 – 1997, Aligarh Muslim University, India

B.Sc., Honors in Physics, 1992 – 1995, Dayalbagh Educational Institute, India

4 Academic Appointments

Associate Professor - G January 2018 to present

National Centre for Radio Astrophysics, TIFR, Pune, India

Reader -F August 2012 – December 2017

National Centre for Radio Astrophysics, TIFR, Pune, India

Guest Professor August 2017 – May 2018

Stockholm University, Sweden

Adjunct Assistant Professor June 2010 – August 2012

Department of Physics, Royal Military College of Canada, Kingston, ON, Canada

Research Associate September 2008 – December 2011

Department of Physics, Royal Military College of Canada, Kingston, ON, Canada

Jansky Postdoctoral Fellow October 2005 – August 2008

National Radio Astronomy Observatory at Department of Astronomy, University of Virginia, Charlottesville, VA, USA

5 Academic Awards and Grants

1. Swarna Jayanti fellowship, Department of Science & Technology (DST), 2016 – 2021
2. Guest Professor fellowship, Department of Astronomy, Stockholm University 2017Aug - 2018 May (This is a very competitive inter-departmental fellowship. Firstly, a nominee is selected from each department within the Stockholm University. The departmental nomination is then forwarded to the natural sciences faculty at Stockholm University for review, which makes the final selection of one candidate for the year. Dr. Chandra was selected for the year 2017.)
3. Natural Sciences & Engineering Research Council of Canada (NSERC) discovery grant 2011 - 2016 (It is a very prestigious grant provided to faculties at Canadian Universities to carry out high-quality research in the natural sciences and engineering in Canadian universities.)
4. Natural Sciences & Engineering Research Council of Canada (NSERC) early career researcher grant 2011 - 2012
5. International Union of Pure & Applied Physics (IUPAP) Young Scientist award 2010 In C19 Astrophysics; <http://iupap.org/commissions/c19-astrophysics/c19-awards/>
6. Indian National Science Academy (INSA) medal for Young Scientists 2006 <http://insaindia.res.in/youngmedal>
7. Best Thesis Award (Kumari L. Meera medal) in Theoretical Physics at Indian Institute of Science, Bangalore, India, 2005
8. Sarojini Damodaran International fellowship, TIFR 2004
9. DST award for participation in the meeting of Nobel laureates and students, Landau 2004
10. TIFR scholarship during doctoral studies towards the PhD degree 2000 – 2005
11. Council of Scientific and Industrial Research (CSIR)-NET Junior Research Fellow 1999 (declined).
12. F.D.Murad Imamuddin Gold medal M.Sc. Physics, Aligarh Muslim University, India, 1997

6 Teaching Experience

1. Introduction to Astronomy and Astrophysics II (Stellar Physics), IUCAA-NCRA Graduate School 2019-2020
2. Astrophysics I (PHY-311), M. Sc. (Physics), Sept-Dec, 2018
3. Radio and X-ray Astronomy, Stockholm University Advanced Ph.D. Course 2017-2018
4. Electrodynamics and Radiative Processes I, IUCAA-NCRA Graduate School Course 2016–2017
5. Electrodynamics and Radiative Processes I, IUCAA-NCRA Graduate School Course 2015–2016
6. Elective course “Astronomy and Astrophysics-I” (PHY-T311) to M.Sc. IInd year students at Department of Physics, Pune University, Pune, India, September – December, 2014

7. Elective course “Astronomy and Astrophysics-I” (PHY-T311) to M.Sc. IInd year students at Department of Physics, Pune University, Pune, India, September – December, 2013
8. Undergraduate course “Introductory Physics” (PHE 134), Royal Military College of Canada, Kingston, ON, Canada, Summer 2011
9. Undergraduate course “Introduction to Astrophysics” (PHE203), Royal Military College of Canada, Kingston, ON, Canada, Summer 2010
10. Undergraduate course “Astronomy and the Evolving Universe” (PHE360), Royal Military College of Canada, Kingston, Canada, January – May, 2009
11. Teaching Assistant for High Energy Astrophysics course given to Masters (M.Sc.) students of Mumbai University, Mumbai, India, Fall 2001
12. Physics course, Higher Secondary School at Aligarh Muslim University.

7 Professional Service

7.1 Membership of Professional Organizations

- Co-Chair, Square Kilometre Array (SKA) India Consortium for transient science, 2013 onwards
- Member, Women Cell, 2018 onwards
- Executive committee member, Astronomical Society of India, 2019 onwards
- Member, SKA international Science Working Group (SWG) for Gravitational Wave Physics, 2019 onwards
- Member, SKA international Science Working Group (SWG) for Transient Sciences, 2015 onwards
- Chair, Women Cell, NCRA-TIFR 2015 - 2018.
- Member, International Astronomical Union, 2013 onwards

7.2 Telescopes related

- Scheduler for GMRT telescope, cycle 30 onwards, 2015 onwards
- Member of AstroSAT Target of Opportunity proposals committee, 2018 onwards
- Member of Very Large Array proposal peer review committee, 2020 onwards
- Reviewed applications for NASA Postdoctoral Program, 2015.
- Himalayan Chandra Telescope proposals reviewer, 2014.
- IUCAA Girawali Observatory proposals reviewer, 2014.
- Giant Metrewave Radio Telescope proposals reviewer, 2014?2018.
- Gemini Observatory proposals reviewer, 2008.
- ChandraXO time allocation committee, 2007- 2009.

7.3 Referee for peer reviewed journals

- Nature
- Nature Astronomy
- The Astrophysical Journal
- The Astrophysical Journal Letters
- Monthly Notices of the Royal Astronomical Society ? Advances in Space Research
- New Astronomy
- Research in Astronomy & Astrophysics

7.4 In organizing conferences and workshops

- Scientific Organizing committee, MOBSTER 2020, Magnetism in Massive Stars, July 2020
- Organizer and Scientific Organizing Committee chairperson, "Conference: Shocking Supernovae and their interaction with surrounding medium", Stockholm University, to be held in May 28- June 1, 2018
- Organizer and convener, "Workshop on Gamma Ray Bursts: prompt to afterglow", NCRA/TIFR, to be held in July 4 – 7, 2017
- Member of the Scientific Organizing Committee for Thirty Meter Telescope (TMT) Science Forum, Kyoto, Japan. May 24 – 26, 2016
- Member of the Local Organizing Committee for "Astronomical Society of India meeting 2015" at NCRA, Pune, India. February 17 – 20, 2014
- Member of the Local Organizing Committee "IAUS 296: Supernova environmental impacts" at Raichak, India. January 7 – 11, 2013
- Member of the Scientific Organizing Committee for workshop "A Festival of Cosmic Explosions" at Caltech, CA, USA. August 21 –23, 2009
- Chairperson of the Scientific Organizing Committee for the "NRAO Postdoctoral Symposium" at NRAO, Charlottesville, VA, USA. April 28 –29, 2008
- Member of the Local Organizing Committee for "Workshop on Supernovae, Gamma Ray Bursts and Pulsars" at TIFR, Mumbai. January 19 –23, 2004

8 Major telescope time awards

8.1 As Principal Investigator of X-ray telescopes proposals:

1. Around 250 ks Chandra telescope time under Target of Opportunity (ToO) proposals on Type IIIn Supernovae during cycles 10 to 18.

2. 170 ks Chandra time to study the evolution of supernova SN 2010jl under cycle 18 (50 ks), 15 (40 ks) and cycle 13 (80 ks).
3. Chandra proposal to study X-ray emission from SN 1995N in cycle 5 (55 ks).
4. 140 ks XMM-Newton proposals on Type II_n Supernovae in cycles 7 & 11.
5. XMM-Newton proposal on evolution of SN 2010jl in cycle 12 (43 ks).
6. ~ 100 ks time of *Swift*-XRT telescope time for supernovae and GRBs.

8.2 As Principal Investigator of Radio telescopes proposals:

1. Around 200 hours of GMRT time for magnetic massive stars, Cycle 25 – 31.
2. ~ 500 hours of GMRT time on supernovae, Cycle 1 – 32 and DDT proposals.
3. ~ 70 hours of GMRT time for TeV supernova remnants, Cycle 23 – 32.
4. More than 150 hours of GMRT time for Gamma Ray burst (GRB) observations, under DDTs and regular proposals.
5. 20 hours of GMRT time on HI absorption at high-z galaxy (2000, 2002).
6. 150 hours of VLA ToO proposals on Type II_n supernovae, semesters 7B–16B.
7. Around 40 hours of VLA time on magnetic massive stars.
8. Around 30 hours of VLA proposal time for SN 2010jl in semesters 12A–16B.
9. Around 50 hours of VLA time on SN 2006jd, during semesters 8B–13B.
10. 30 hours of VLA proposals on SN 1993J, SN 2008iy, SN 2006X and SN 2005kd during semesters 7A – 12A.
11. Around 80 hours of VLA time for GRB followups during semesters 7A-12B.

8.3 As co-investigator of various telescope proposals

1. Joint Spitzer/Chandra proposal on Type II_n supernovae in cycle 15 (80ks).
2. 200 ks of Joint Chandra/VLA time on Type II_p supernovae, cycle 13 and 15.
3. Hubble Space Telescope proposal for SN 1993J in cycle 22.
4. VLA proposal on ultraluminous supernovae, semester 13B (12 hrs).
5. Around 400 hours of VLA time on Gamma Ray Bursts, semester 12A (50 hrs), 10C, 10A, 9C, 8C, 7C, 7B,
6. VLA proposal on transient radio sky, semester 10B, 8B.
7. Joint Fermi/VLA proposal for energetic Gamma Ray Bursts in cycles 1–5.
8. Very Large Telescope proposals on Type Ia supernovae (2008).

9. Around 75 hours of GMRT proposals on HI mapping of nearby galaxies, cycles 22 (24 hrs) and 23 (48 hrs)
10. GMRT proposal on Fast Radio Bursts, cycle 27 (~ 150 hrs).

9 Hardware and Software Skills

Astronomy Analysis Software:

- AIPS, CASA, DS9, SAOimage, SAS, CIAO, XSPEC, HeaSOFT.

Computer Programming:

- IDL, Python and Mathematica, Grace.

10 Conference, workshops and talks

Invited Talks:

1. 3rd National Symposium on Very High Energy Gamma- Ray Astronomy, BARC Mumbai February 2020
2. Understanding the violent Universe and the critical role of Women Scientists?, Summer School for Women in Mathematics and Statistics, ICTS Bangalore, May 2019
3. Guest of honour talk, “Advances in Astronomy & Space Sciences ”, Technology & Innovations for her, Sharada Shakti & Model College Pune, Mar 2019
4. SymPhy 2019, IIT Mumbai, Mar 2019 (invited inaugural talk)
5. Multi-messenger Astronomy in the era of LIGO India, Khandala, Jan 2019
6. GROWTH India Workshop, IIT Mumbai, Dec 2018
7. PAX IV- 4th meeting of the “Physics and Astrophysics at the eXtreme”, IUCAA, Aug 2018
8. “Osker Klein Center, Stockholm University Colloquium, ”Supernovae at low frequencies”, Stockholm, Sweden, 30 January 2018
9. “IAUS 331: SN 1987A, 30 years later – Cosmic Rays and Nuclei from Supernovae and their aftermaths”, IAU Symposium 331, Saint-Gilles-Les-Bains, La Réunion Island, France, 20–24 February 2017.
10. “Supernova Workshop”, International Space Science Institute, Bern, Switzerland, October 3–7, 2016.
11. “ Jet triggering Mechanisms”, TIFR Mumbai, India, January 20–23 2016.
12. “International Conference on Cosmology And Gravitation”, IISER Mohali, India, December 14–18 2015.
13. “Indian participation in SKA” - Satellite work shop of Astronomical Society of India meeting 2015, NCRA, Pune February 16, 2015.

14. Plenary talk in Astronomical Society of India meeting 2015, NCRA, Pune February 17–20, 2015.
15. BinaMIcs#3 & MiMeS meeting, Paris Observatory, France July 21–25, 2014
16. MIT-IUCAA workshop on X-ray studies of transient astronomical sources, IUCAA Pune, January 13–24, 2014.
17. Gravitational Wave Physics and Astronomy Workshop, in session on “Astronomy and Physics with LIGO-India”, IUCAA Pune, December 17–20, 2013.
18. Huntsville γ -Ray Burst Symposium, Nashville, USA, April 14–18, 2013.
19. IAUS 296: Supernova environmental impacts, Raichak, January 7–11, 2013.
20. 25th Texas Symposium on Relativistic Astrophysics, Heidelberg, Germany, December 6–11, 2010.
21. Rogerfest: A celebration of cosmic explosion, Caltech, USA, August 2009.
22. Supernova 1987A: 20 Years After. Supernovae and Gamma-Ray Bursters, Aspen, Colorado, USA, February 19–23, 2007.
23. NRAO Postdoctoral fellow symposium 2008, Charlottesville USA, April 2008.
24. NRAO Postdoctoral fellow symposium 2007, Greenbank, USA, April 2008.
25. NRAO Postdoctoral fellow symposium 2006, Socorro, USA, April 2008.
26. “75th Birthday of Govind Swarup”, NCRA, Pune, India, March 22–24, 2004.
27. Workshop on Supernovae, Gamma-ray Bursts and Pulsars, TIFR, Mumbai, India, January 19–23, 2004, .

Oral Presentations:

1. Supernovae & Supernovae Remnants: And Odyssey of stellar death, Crete, Greece, June 2019 (presented work on two topics)
2. SKA General Science Meeting and Key Science Workshop, Chesire UK, April 2019 (2 talks in break-out sessions)
3. Meterwavelength SKY II, NCRA-TIFR, Pune, Mar 2019 (contributed talk)
4. URSI, India Habitat Centre, Pune, Mar 2019 (contributed talk) SymPhy 2019, IIT Mumbai, Mar 2019 (invited inaugural talk)
5. Astronomical Society of India, Christ College, Bangalore, Feb 2019 (con- tributed talk)
6. SKA 2016: Science for the SKA generation, Goa, November 07–11 2016.
7. Richard McCray Symposium, University of Bern, Switzerland, June 2015.
8. Astronomical Society of India meeting, IISER Mohali, March 20-22, 2014.

9. Regional conference on radio science, SIT Pune, January 2-5, 2014.
10. The Metrewavelength Sky, NCRA-TIFR, Pune, December 9-13, 2013.
11. CASCA 2011 meeting, University of London, Canada, May 30-Jun 2, 2011.
12. CASCA 2009 meeting, University of Toronto, May 26-29, 2009.
13. Magnetism in Massive Stars (MiMeS) II, Paris, France, May 11-15, 2009.
14. COSPAR: 37th assembly meeting, Montreal, Canada, July 13-20, 2008.
15. Gamma-Ray Bursts 2007, Santa Fe, New Mexico, USA, November 5-9, 2007.
16. Workshop “From Massive Stars to Supernova Remnants”, Leiden, The Netherlands, August 6-17, 2007.
17. Postdoctoral Interview talk on “Circumstellar interaction of supernovae”, Niels Bohr Institute, University of Copenhagen, Denmark, January 2005.
18. International Conference 1604-2004: Supernovae as Cosmological Light houses, Padova, Italy, June 16-19, 2004.

Colloquia and talks:

1. Several colloquia given at National Centre for Radio Astrophysics, Pune, India, Queen’s University, Kingston, Canada, Royal Military College of Canada, Kingston, Canada, National Radio Astronomy Observatory, Charlottesville, USA, Indian Institute of Science, Bengaluru, India, Tata Institute of Fundamental Research, Mumbai, India, Inter University Centre for Astronomy and Astrophysics, Pune, India, Raman Research Institute, Bengaluru, India, Indian Institute of Astrophysics, Bengaluru.
2. Various talks at Caltech, Pasadena, USA, University of Virginia, Charlottesville, USA, Instituto de Astrofisica de Andalucia, Spain, Max-Planck-Institut for Kernphysik Postfach, Heidelberg, Naval Research Laboratory, Washington DC U.S.A., Harvard Smithsonian Centre for Astrophysics, Boston etc.

11 Public Outreach

- Outreach talk, Nehru Planetarium, New Delhi (online), Oct 2020
 - IAU Outreach talk, AstroZoom, Iran (online), Oct 2020
 - Shastra Snehi outreach talk (online), Oct 2020
 - MACFAST outreach talk (online), Sep 2020
 - Panelist, March for Science, Mumbai Chapter, “Barriers of Class and Burden of English” (online), July 2020
 - Invited Evening Public Lecture, Vigyan Vidushi (online), June 2020
 - Introduction to Radio Astronomy, Vigyan Samagam, Nehru Planetarium, June 2019
 - Transient Universe through radio window, Vigyan Samagam, Nehru Planetarium, June 2019

- Violent Universe?, ICTS, Bangalore, May 2019 Evening Lecture at Fergusson college for United Nation's day for women and girls in Science, Feb 2019
- EPIC: Extreme Phenomenon in the Cosmos, Rungsted School, visit from Denmark, NCRA Pune, Jan 219
- How to become a scientist??, Frontier of Science, TIFR Mumbai, Nov 2018
- Explosive Universe?, Outreach talk, Vidya Valley School, Sep 2018
- Frontier of Science, TIFR, Mumbai Nov 27, 2016, "How to become a Scientist".
- Chai & Why, Prithvi Theatre, Mumbai Aug 22, 2016, "Violent explosions in the Universe".
- Aastronomica, Pune, Feb 1, 2015, "Biggest Bombs in the Universe".
- IISER Pune Astronomy club, September 8 2014, "Cosmic Explosions".
- Exciting Science Group, NCL/IISER-P, January 27 2014, "Cosmological explosions".
- Queens University, Canada, Jul 14, 2012, "Cosmic Explosions: Seeds of life".
- Public Astronomy talk at Novelis Global Technology Center, International Year of Astronomy, August 2009.
- McCormick observatory, Charlottesville, Public Astronomy Night, June 2008.
- Popular Astronomy, Richmond Astronomical Society, Richmond, Dec 2007.
- Astronomy talk at the Jefferson Institute for Lifelong Learning, Charlottesville, Personal enrichment classes for senior citizens, October 2007.
- Public Astronomy Night, McCormick observatory, Charlottesville, Aug 2007.
- Popular Astronomy talk at The Jefferson Institute for Lifelong Learning, Charlottesville, VA, December 2006.
- Made 7 women literate under Literacy Program, Adult Education, National Service Scheme, India, 1995.

12 Coverage in media

For CSS161010 Paper:

- "Indian Express", 27 May 2020
- "Hindustan Times", 27 May 2020
- "Times of India", India 27 May 2020

For Nature and Science papers on Gravitational Wave event GW 170817:

- "Swedish Science Radio", Stockholm, 21 December 2017
- "Swedish Science Radio", Stockholm, 22 December 2017
- "India Science Wire, DST", India 21 December 2017
- "The Wire", 22 December 2017
- "Outlook India", 21 December 2017
- "The Times of India Newspaper", 21 December 2017
- "The Indian Express Newspaper", 21 December 2017
- "The Dept of Astronomy, Stockholm University press coverage, 20 December 2017

For IUPAP young scientist award:

- Television interview on CKWS Canadian TV channel, January 2011.
- “Whats happening at RMC?”, e-VERITAS Newsletter, Jan 23, 2011.
- “India Canada Association Winter Newsletter”, 2011.

For SN 2009bb work:

- “SN 2009bb: where are the gamma rays?”, In CERN courier, Feb 24, 2010
- “Newborn black holes add power to exploding stars” Astronomy Now, Jan 28, 2010.

For GRB 090423 work:

- In Ottawa Citizen newspaper, Canada, October 2009.
- In Vancouver Sun newspaper, Canada, October 2009.
- In National Radio Astronomy Observatory press release, October 2009.

For Type Ia SN 2006X work:

- European Organisation for Astronomical Research (ESO) press release, May 2007.

For work on Soft Gamma Ray Repeater SGR 1806-20:

- Interview on TV channel ÒNDTVÓ of India on April 30, 2005.
- Interview on TV channel ÒSahara SamayÓ of India on May 14, 2005.
- In newspaper “Deccan Herald”, India on April 28, 2005.
- In newspaper “The Times of India”, India, May 03, 2005.
- In newspaper “Indian Express”, May 04, 2005.
- In newspaper “Gujarat Samachar”, India, September 27, 2005.
- In newspaper “Maharashtra Times”, India, May 08, 2005.
- In newspaper “Nav Prabhat”, India, May 02, 2005.
- In newspaper “Nav Bharat Times”, India, May 08, 2005.