

CURRICULUM VITAE

Dr. Nand Kumar Chakradhari,
Senior Assistant Professor,
SoS in Physics & Astrophysics,
Pt. Ravishankar Shukla University,
Raipur, C. G., 492010, INDIA



CAREER OBJECTIVE

To carry out research in the interesting field of Astronomy & Astrophysics and to pursue a career in an esteemed institute which will motivate me in achieving highest individual and professional growth in a manner to prove myself as an asset to the scientific community. I am aiming to be a key player in this challenging and creative environment.

CAREER PROFILE

May, 2014-till date : Working as a **Senior Assistant Professor** at School of Studies (SoS) in Physics & Astrophysics, Pt. Ravishankar Shukla University, Raipur, C. G.

May, 2008-May2014 : Worked as an Assistant Professor at SoS in Physics & Astrophysics, Pt. R. S. University, Raipur, C. G.

Aug, 2006-May, 2008 : Worked as a Junior Research Fellow at Space Astronomy and Instrumentation Division (SAID), ISRO Satellite Centre (ISAC), Bangalore.

Feb, 2005-July, 2006 : Worked as a Research Trainee at Center for Research and Education in Science and Technology (CREST), Indian Institute of Astrophysics (IIA), Bangalore.

ACADEMIC PROFILE

- ◆ PhD Physics (2016) from Pt. R.S. University Raipur, C.G.
- ◆ MSc Physics (2004) from Pt. R.S. University Raipur, C.G. with 75.08%.
- ◆ BSc (2002) from S.P.C. College Nawapara-Rajim (Pt. R.S. Univ. Raipur, C.G.) with 75.6%.
- ◆ Higher Sec. School (1999) from Govt. H.S.S. Nawapara-Rajim (M.P. Board, Bhopal) with 84.6%.
- ◆ High School (1997) from Govt. H.S. Nawapara-Rajim (M.P. Board, Bhopal) with 79%.

ACHIEVEMENTS & AWARDS

- ◆ Awarded with **Chhattisgarh Young Scientist of Physics** 2013.
- ◆ Qualified for **Joint Entrance Screening Test (JEST)** 2006.
- ◆ Qualified for Lectureship in UGC-CSIR **National Eligibility Test (NET)** 2005.
- ◆ University first rank in MSc Physics. Awarded with **Gold Medal**.

- ◆ University second rank in BSc (first rank in College, awarded with **Gold Medal**).
- ◆ School first rank in Higher Secondary. Awarded with **Silver Medal**.
- ◆ Awarded with **Gold Medal** on Gandhi Jayanti Convocation organized by an NGO for educational performance in rural area.
- ◆ Visiting Associate of Inter-University Centre for Astronomy and Astrophysics (IUCAA), Pune since August 1, 2017.
- ◆ Coordinator of “IUCAA Centre for Astronomy Research and Development (ICARD) since April 2019.

RESEARCH EXPERIENCE

- ◆ Worked on PhD Thesis entitled “**Observational studies of Type Ia Supernovae**”, under the supervision of Prof. D.K. Sahu, Indian Institute of Astrophysics, Bangalore and co-supervision of Prof. S.K. Pandey, SoS in Physics and Astrophysics, Pt. R.S. University, Raipur, C.G.
- ◆ Worked as Junior Research Fellow (JRF) at ISRO Satellite Centre, Bangalore (2006-08) on Research Project entitled “**Survey and study of rapidly oscillating Ap (roAp) stars in the northern hemisphere**”.
- ◆ Having one and half year (2005-06) experience in **remote handling** and **Optical-NIR** observations using 2-meter **Himalayan Chandra Telescope** installed at an altitude of 4500 meter above mean sea level at Indian Astronomical Observatory (IAO), Hanle-Leh, and remotely operated by IIA, Bangalore via a dedicated satellite link .
- ◆ Versatile in **CCD photometric and spectroscopic** single-aperture, multi-aperture (echelle) data reduction and analysis using **IRAF** (Image Reduction and Analysis Facility) software package.
- ◆ Developed **IRAF** based very efficient and time saving **cl-script** for automated photometric and spectroscopic data reduction.
- ◆ Familiar with the **Ultraviolet-Optical** data reduction of **Swift satellite** using **HEASOFT**.
- ◆ Performed analysis of **Supernovae SN 2004A, SN 2004ab, SN 2005cf, SN 2005el, SN 2005ke, SN 2009ig, SN 2010kg, SN 2011dh, SN 2012dn, SN 2012cg and SN 2014ad**.
- ◆ Well acquainted in using **SSP3, SSP5A, Two channel, Three channel fast Photometers** and various **imaging- spectroscopic equipments** for astronomical studies.
- ◆ Observational experience of more than 14 years in the field of astronomy & astrophysics. Worked with various class of telescopes installed all over the country i.e. 6-inch, 8-inch, 14-inch Telescopes at Pt R.S. Univ. Raipur, 1.04-m, 1.3-m, 3.6-m Telescopes at ARIES Nainital, 2-m Himalayan Chandra Telescope at IAO, Hanle-Leh, 1-m, 2-m Telescopes at Vainu Bappu Observatory, Kavalur, 2-m IGO Telescope at IUCAA, Pune.
- ◆ Presently, along with teaching, actively involved in the research in the field of Astronomy & Astrophysics and associated with a group of people working on “Supernovae, Galaxies, Chemically Peculiar Stars and variable stars”.

FELLOWSHIP

- ◆ **UGC Teacher Fellowship** awarded by the University Grant Commission, New Delhi during 16th July 2015 - 15th January 2016.
- ◆ **Summer Research Teacher Fellowship** awarded by the Indian Academy of Sciences during 18th May - 14th July, 2015.
- ◆ **Chhattisgarh Young Scientist Fellowship** awarded by the Chhattisgarh Council of Science and Technology, Raipur, C.G. during 6th May - 5th July, 2013.
- ◆ **INSA Visiting Scientist Fellowship** awarded by the Indian National Science Academy, Dept. Of Science and Technology, New Delhi during 02nd Sep- 6th Dec, 2013.

COMPUTATIONAL SKILL

- ◆ Operating System- Linux, Windows
- ◆ Programming- FORTRAN, HTML
- ◆ Packages- IRAF, HEASOFT for Swift UV data.
- ◆ Plotting Software- SM, Origin, Gnuplot, Excel
- ◆ Computer Administration at Astrophysics Lab, Computer Lab and IUCAA Resource Centre, SoS in Physics & Astrophysics, Pt. R.S. University, Raipur, C.G.

RESEARCH COURSES ATTENDED

- ◆ Post Graduate Pre-PhD Research Courses (2007-08) at Indian Institute Science (IISc) Bangalore, under Joint Astronomy Program (**JAP**).

PUBLICATIONS

Papers : (International/ National Refereed Journal)

Note :- B. P. Schmidt, Co-author of paper no. 15, is NOBEL PRIZE WINNER in PHYSICS 2011.

1. **Optical and UV studies of type Ia supernovae SN 2009ig and SN 2012cg**, Chakradhari N. K., Sahu D. K., Anupama G. C., accepted for publication in MNRAS (2019 May 10).
2. **Observational properties of a Type Ib supernova MASTER OT J120451.50+265946.6 in NGC 4080**, Singh Mridweeka, Misra Kuntal, Sahu D. K., Dastidar Raya, Gangopadhyay Anjasha, Srivastav Shubham, Anupama G. C., Bose Subhash, Lipunov Vladimir, Chakradhari N. K., Kumar Brajesh, Kumar Brijesh, Pandey S. B., Gorbovskoy Evgeny, Balanutsa Pavel, 2019, MNRAS, 485,5438.
3. **Broad-line type Ic Supernova SN 2014ad**, Sahu D. K., Anupama G. C., Chakradhari N. K., Srivastav S., Tanaka M., Meada K., Nomoto K., 2018, MNRAS, 475, 2591.
4. **Exploring the optical behaviour of a type Iax supernova SN 2014dt**, Singh Mridweeka, Mishra Kuntal, Sahu D. K., Dastidar Raya, Gangopadhyay Anjasha, Bose Subhash, Srivastav Shubham, Anupama G. C., Chakradhari N. K., Brajesh Kumar, Brijesh Kumar, Pandey S. B., 2018, MNRAS, 474, 2551.
5. **Highly reddened type Ia supernova SN 2004ab: another case of anomalous extinction**, Chakradhari N. K., Sahu D. K., Anupama G. C., 2018, MNRAS, 474, 2502.

6. **The hot γ Doradus and Maia stars**, Balona L. A., Engelbrecht C. A., Joshi Y. C., Joshi S., Sharma K., Semenko E., Pandey G., Chakradhari N. K., Mkrtichian David, Hema B. P., Nemec J. M., 2016, MNRAS, 460, 1318.
7. **The Nainital-Cape Survey-IV : A search for pulsational variability in 108 chemically peculiar stars**, Joshi S., Martinez P., Chowdhury S., Chakradhari N. K., Joshi Y. C., van Heerden P., Medupe T., Kumar Y. B., Kuhn R. B., 2016, A&A, 590A, 116.
8. **Supernova SN 2012dn: A Spectroscopic clone of SN 2006gz**, Chakradhari N. K., Sahu D. K., Srivastav S., Anupama G. C., 2014, MNRAS, 443, 1663.
9. **Study of dust and ionized gas in early type galaxies**, Kulkarni Samridhi, Sahu D. K., Chaware L. K., Chakradhari N. K., Pandey S. K., 2014, New Astronomy, 30, 51.
10. **One year of monitoring of the Type IIb supernova SN 2011dh**, Sahu D. K., Anupama G. C., Chakradhari N. K., 2013, MNRAS, 433, 2.
11. **A spectroscopic analysis of the chemically peculiar star HD 207561**, Joshi S., Semenko E., Martinez P., Sachkov M., Joshi Y. C., Seetha S., Chakradhari N. K., Mary D. L., Girish V., Ashoka B. N., 2012, MNRAS, 424, 2002.
12. **Time-resolved photometric and spectroscopic analysis of the luminous Ap star HD103498**, Joshi S., Ryabchikova T., Kochukhov O., Sachkov M., Tiwari S. K., Chakradhari N. K., Piskunov N., 2010, MNRAS, 401, 1299.
13. **The Nainital-Cape Survey. III. A search for pulsational variability in chemically peculiar stars**, Joshi S., Mary D. L., Chakradhari N. K., Tiwari S. K., Billaud C., 2009, A&A, 507, 1763.
14. **Photometric and spectroscopic evolution of type II-P supernova SN 2004A**, Gurugubelli Uday K., Sahu D. K., Anupama G. C., Chakradhari N. K., 2008, BASI, 36, 79.
15. **ESC observation of SN 2005cf I. Photometric Evolution of a Normal Type Ia Supernova**, Pastorello A., Taubenberger S., Elias-Rosa N., Mazzali P. A., Pignata G., Cappellaro E., Garavini G., Nobili S., Anupama G. C., Bayliss D. D. R., Benetti S., Bufano F., Chakradhari N. K., Kotak R., Goobar A., Navasardyan H., Patat F., Sahu D. K., Salvo M., **Schmidt B. P.**, Stanishev V., Turatto M., Hillebrandt W., 2007, MNRAS, 376, 1301-1316.

Papers : (International Conference Proceedings)

1. **The Nainital Cape Survey Project : A Search for Pulsation in Chemically Peculiar Stars**, Chakradhari, N. K., Joshi S. Presented at First Belgo-Indian Network for Astronomy & Astrophysics (BINA) International workshop held at ARIES, Nainital during 15-18 Nov. 2016. Published in Bulletin de la Société Royale des Sciences de Liège 2018, BSRSL, 87, 150 (ISSN : 0037-9565, E-ISSN : 1783-5720).
2. **A Peculiar Subclass of Type Ia Supernovae a.k.a. Type Iax**, Mridweeka Singh, Kuntal Misra, Devendra Kumar Sahu, Raya Dastidar, Anjasha Gangopadhyay, Subhash Bose, Shubham Srivastav, Gadiyara Chakrapani Anupama, Nand Kumar Chakradhari, Brajesh Kumar, Brijesh Kumar & Shashi Bhushan Pandey. Presented at First Belgo-Indian Network for Astronomy & Astrophysics (BINA) International workshop held at ARIES, Nainital during 15-18 Nov. 2016.

Published in Bulletin de la Société Royale des Sciences de Liège 2018, BSRSL, 87, 340 (ISSN : 0037-9565, E-ISSN : 1783-5720).

3. **Multiwavelength study of radio loud early type galaxies from B2 Samplae**, *Sheetal Kumar Sahu, L. K. Chaware, S. K. Pandey, M. B. Pandge, Samridhi Kulkarni, N. K. Chakradhari*, Presented at IAU symposium S304 on Multiwavelength AGN Surveys and Studies held at Yerevan, Armenia during October 7-11, 2013. Published in Proc. of IAU Symp., Mickaelian & Sanders eds., 2014, IAUS, 304, 353.

4. **Optical studies of type IIb Supernova SN2001dh**, *D. K. Sahu, G. C. Anupama, N. K. Chakradhari*, IAU Symposium 296 on Supernova Environmental Impacts held at Raichak-on-Ganges, near Kolkata, India during January 7-11, 2013. Published in Proc. of IAU Symp., Ray & McCray eds., 2014, IAUS, 296, 338.

5. **Time-Resolved Photoelectric, Photometric and High-Resolution Spectroscopic Data Analysis of a Luminous Ap Star HD 103498**, *Joshi S., Joshi Y. C., Ezhkova O. V., Sachkov M., Ryabchikova T., Kochukhov O., Chakradhari N. K., Tiwari, S. K.*, International Conf. held at SAO, Russian AS during 27 August–01 September, 2011, Published in Magnetic Stars Conf. Proc., 2011, pp 330-341.

6. **Search for P-mode Pulsations in Late Type Chemically Peculiar Stars**, *Joshi S., Chakradhari N. K.*, International Conference AOGS 2010, held at Hyderabad during July 5-9, 2010, Published in Advances in Geosciences, 2011, World Sc. Company, 27, 219.

Circulars:

1. **Classification of AT 2016c in NGC 5247 as a type II supernova**, *D. K. Sahu, G. C. Anupama, S. Srivastav, N. K. Chakradhari*, 2016, ATEL, 8514.

2. **Spectroscopic classification of PSN J11430127 + 2357016 in UGC 6681 and PSN J16412717 + 5747050 in NGC 6211**, *S. Srivastav, N. K. Chakradhari, D. K. Sahu, G. C. Anupama*, 2013, ATEL # 5105.

3. **GRB060124 Optical Observations**, *B. C. Bhatt, D. K. Sahu, Srividya S., N. K. Chakradhari*, 2006, GCN45971.

4. **GRB050121 Optical Observations**, *D. K. Sahu, G. Pandey, P. Bama, N. K. Chakradhari*, 2005, GCN 4294 .

Posters: (International/ National Conferences)

1. **Multiband study of a lenticular galaxy NGC 1266**, *Sheetal Kumar Sahu, L. K. Chaware, N. K. Chakradhari, Mahendra Verma, Amit Tamrakar, S. K. Pandey* , presented at National Conference on Signal Processing, Sustainable Energy Materials, and Astronomy & Astrophysics, held at SoS in Physics & Astrophysics, Pt. R.S. University, Raipur during 28-30 March, 2017 (**Awarded with 2nd prize**).

2. **Multicolor surface photometry of a sample of low luminosity radio galaxies**, *Sheetal Kumar Sahu, S.K. Pandey, N.K. Chakradhari, M. B. Pandge*, presented at IAU XXIX General Assembly, held at Honolulu, Hawaii during 3-14 August, 2015.

3. **Spectral studies of some E/SO galaxies using the SDSS DR7 data**, *Amit Kumar*

Tamrakar, L. K. Chaware, S. K. Pandey, N. K. Chakradhari, Sheetal Sahu, presented at 30th Scientific Meeting of Astronomical Society of India (ASI-2013) held at IISER-IIST-IRC, Kerla during February 20-22, 2013.

4. **Multiwavelength investigation of some dusty E/SO galaxies**, *Samridhi Kulkarni, L. K. Chaware, N. K. Chakradhari, D. K. Sahu, S. K. Pandey*, 29th Scientific Meeting of Astronomical Society of India (ASI-2011) held at SoS in Physics & Astrophysics, Pt. RS University, Raipur during February 23-25, 2011. **(Awarded with 1st prize).**
5. **Study of Dust properties in Early type Galaxies**, *Samridhi Kulkarni, D. K. Sahu, Laxmikant Chaware, N. K. Chakradhari, S. K. Pandey*, International Conference : Wittfest : Origins and evolution of Dust, University of Toledo, Ohio, USA during October 10-12, 2010.
6. **Multiband Photometric Study of Dusty Early Type Galaxies**, *Samridhi Kulkarni, L. K. Chaware, N. K. Chakradhari, D. K. Sahu, S. K. Pandey*, 16th National Space Science Symposium 2010 held at Saurashtra University, Rajkot during 24-27, February, 2010. **(Awarded with 3rd prize).**
7. **Study of dust and ionized gas in Early type galaxies**, *Samridhi Kulkarni, D.K. Sahu, Laxmikant Chaware, N. K. Chakradhari, S. K. Pandey*, 29th Scientific Meeting of Astronomical Society of India (ASI-2009) held at Bangalore during February 18-20, 2009.

INVITED LECTURES/ TV DISCUSSIONS

1. Given a lecture on “Communicating Science for all” on 28 Feb 2019 at Govt. College Kurud, Dhamatari on the occasion of National Science Day.
2. Delivered a talk on Basics of Astronomical Observations along with Sky watching Program in evening on 18 September 2018 at IIT, Bhilai.
3. Given a lecture on Coordinates and Constellation in SITARE Workshop, 17-19 Aug 2018, Pt. R.S. University, Raipur.
4. Invited as an expert for a discussion on “Lunar eclipse of 27 July 2018” in a TV programme broadcasted by IBC 24hour TV channel on 27 July 2018. <https://youtu.be/jnqHDg9S2Pg>
5. Given a Lecture on Astronomy & Astrophysics : Telescopes and Stellar Evolution at Kendriya Vidyalay-2, Raipur on 11 June 2018 .
6. Given a lecture on Dynamic Earth at Seth P.C. College Nawapara Rajim on 28 February 2018.
7. Given a lecture on Research and Career Opportunities at Govt Science College Raipur on 23 February 2018
8. Given a lecture on Astronomy & Astrophysics, and organized sky watching program at Govt School Rakhi, Naya Raipur on 26 October, 2017.
9. Given talk on SUN and Season on 15 July 2017 at SPC College Nawapara Rajim.
10. Delivered a lecture on Particle Physics at Bhilai Mahila College, Bhilai on 12 January, 2017.

11. Worked as a resource person in Science Popularization workshop for Tribal students. Delivered lecture and arranged sky watching programme at Govt. H.S. School, Singhiya, Dist. Korba during 15-16, October 2016.
12. Delivered a talk on “Maths, Science and Astrophysics (Ganit, Vigyan aur Khagolvigyan)” at Chhattisgarh Science Center, Raipur on 20 September 2016.
13. Delivered an invited lecture on “Importance of mathematics in Astronomy & Astrophysics” at S.P.C. College Nawapara, Rajim on 15 January 2016.
14. Delivered an invited lecture on Study of stars using telescopes as a part of celebration of “Astronomy Day” at Chhattisgarh Science Center, Raipur on 25th April 2015.
15. Delivered an Invited lecture on Astronomy & Astrophysics: Opportunities and Challenges at Govt. College Balod on 15th Jan 2015.
16. Delivered an Invited lecture on Opportunities and Challenges in Physics & Astrophysics at Bhilai Mahila Mahavidyalaya, Sector-9, Bhilai on 16th Jan 2014.
17. Delivered an Invited lecture on “Career in Physics & Astrophysics”, at Govt. J.R. Dani Girls School, Raipur on 30th March 2013.
18. Delivered an Invited lecture on the “How to Prepare for UGC-CSIR-NET” examination on 06 February, 2012 at Digvijay College Rajnandgaon.
19. Delivered an Invited lecture on “Telescopes & Multiwavelength Universe” in Teachers Training Programme at SCERT, Raipur, C.G. on 22 April, 2010.
20. Invited as an expert for a discussion on “Solar Eclipse of 15 January 2010” in a TV programme broadcasted by *Zee-Chhattisgarh 24hour* TV channel.
21. Invited as an expert for a discussion on “The End of the World on 21 Dec. 2012: a misconception among the common people” in a TV programme broadcasted by *Zee-Chhattisgarh 24hour* TV channel in November 2010.
22. Invited as an expert for a discussion on “Solar Eclipse of 22 July 2009” in a TV programme broadcasted by *Zee-Chhattisgarh 24hour* TV channel.
23. Delivered an Invited lecture on “The longest total solar eclipse of the 21st century: 22 July 2009” at the State Council of Education, Research & Training (SCERT), Raipur, C.G.

SKY WATCHING PROGRAMME

Regularly organize Planetarium Show, sky watching programme, telescope demonstration and astronomical lectures at various places for school/ college students, teachers and public.

IMPORTANT CONTRIBUTION TO DEPT.

- ◆ Working as a joint coordinator of “Centre for Mega Projects in Multiwavelength Astronomy”, awarded with Rs. 14,00,000.00 (Sanction no. 2520/Grant Cell/2016, dated 01-12-2016).

- ◆ Working as coordinator of “IUCAA Centre for Astronomy Research and Development (ICARD)” since April 2019.
- ◆ Involved in preparation and presentation of DST-FIST proposal which was awarded Rs. 97,00,000.00 (Sanction no. SR/FST/PSI-189/November 2013).
- ◆ Worked as Coordinator and member of various committee formed by University Administration time to time.