

## CURRICULUM VITAE

Dr. Nand Kumar Chakradhari  
Senior Assistant Professor  
SoS in Physics & Astrophysics  
Pt. Ravishankar Shukla University, Raipur  
C. G., 492010, INDIA  
Mobile: +91-9753872241  
Email: nandkumarchakradhari@yahoo.co.in



### 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 & 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.

## RESEARCH EXPERIENCE

- ◆ Worked on the 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** used to study celestial objects.
- ◆ Observational experience of more than 11 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 meter Sampurnanand Telescope at ARIES, Nainital, 2 meter Himalayan Chandra Telescope at IAO, Hanle-Leh, 1 meter, 2 meter telescope at Vainu Bappu Observatory, Kavalur, 2 meter IGO telescope at IUCAA, Pune.
- ◆ Presently, along with teaching, very 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 16<sup>th</sup> July 2015 - 15<sup>th</sup> January 2016.
- ◆ **Summer Research Teacher Fellowship** awarded by the Indian Academy of Sciences during 18<sup>th</sup> May - 14<sup>th</sup> July, 2015.

- ◆ **Chhattisgarh Young Scientist Fellowship** awarded by the Chhattisgarh Council of Science and Technology, Raipur, C.G. during 6<sup>th</sup> May - 5<sup>th</sup> July, 2013.
- ◆ **INSA Visiting Scientist Fellowship** awarded by the Indian National Science Academy, Dept. Of Science and Technology, New Delhi during 02<sup>nd</sup> Sep- 6<sup>th</sup> Dec, 2013.

### COMPUTATIONAL SKILL

- ◆ Operating System- Linux, Windows
- ◆ Programming- FORTRAN, HTML
- ◆ Packages- IRAF, HEASOFT for Swift UV data.
- ◆ Plotting Software- SM, Origin, Gnuplot, Excel

### RESEARCH COURSES ATTENDED

- ◆ One-month (Oct-Nov 2004) long extensive study of **CZT Imager** onboard **ASTROSAT** in Tata Institute of Fundamental Research (TIFR), Mumbai under the supervision of Prof. A. R. Rao.
- ◆ 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. 10, is NOBEL PRIZE WINNER in PHYSICS 2011.**

1. **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.
2. **The hot  $\gamma$  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.
3. **Supernova SN 2012dn: A Spectroscopic clone of SN 2006gz**, Chakradhari N. K., Sahu D. K., Srivastav S., Anupama G. C., 2014, MNRAS, 443, 1663.
4. **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.
5. **One year of monitoring of the Type IIb supernova SN 2011dh**, Sahu D. K., Anupama G. C., Chakradhari N. K., 2013, MNRAS, 433, 2.
6. **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.
7. **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.

8. **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.
9. **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.
10. **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.
11. **Highly reddened type Ia supernova SN 2004ab: another case of anomalous extinction**, Chakradhari N. K., Sahu D. K., Anupama G. C., under revision in *MNRAS*.
12. **SN 2014dt : A new chapter in the series of type Iax Supernovae**, 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., under revision in *MNRAS*.

Papers : (International Conference Proceedings)

1. **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.
2. **Optical studies of type I Ib 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.
3. **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.
4. **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. **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.
2. **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 30<sup>th</sup> Scientific Meeting of Astronomical Society of India (ASI-2013) held at IISER-IIST-IRC, Kerla during February 20-22, 2013.
3. **Multiwavelength investigation of some dusty E/SO galaxies**, *Samridhi Kulkarni, L. K. Chaware, N. K. Chakradhari, D. K. Sahu, S. K. Pandey*, 29<sup>th</sup> 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 1<sup>st</sup> prize)**.
4. **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.
5. **Multiband Photometric Study of Dusty Early Type Galaxies**, *Samridhi Kulkarni, L. K. Chaware, N. K. Chakradhari, D. K. Sahu, S. K. Pandey*, 16<sup>th</sup> National Space Science Symposium 2010 held at Saurashtra University, Rajkot during 24-27, February, 2010. **(Awarded with 3<sup>rd</sup> prize)**.
6. **Study of dust and ionized gas in Early type galaxies**, *Samridhi Kulkarni, D.K. Sahu, Laxmikant Chaware, N. K. Chakradhari, S. K. Pandey*, 29<sup>th</sup> Scientific Meeting of Astronomical Society of India (ASI-2009) held at Bangalore during February 18-20, 2009.

#### INVITED LECTURES/ TELEVISION DISCUSSIONS

1. Delivered an Invited lecture on “The longest total solar eclipse of the 21<sup>st</sup> century: 22 July 2009” at the State Council of Education, Research & Training (SCERT), Raipur, C.G.
2. 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.
3. 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.
4. 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.
5. Delivered an Invited lecture on “Telescopes & Multiwavelength Universe” in Teachers Training Programme at SCERT, Raipur, C.G. on 22 April, 2010.

6. Delivered an Invited lecture on the “How to Prepare for UGC-CSIR-NET” examination on 06 February, 2012 at Digvijay College Rajnandgaon.
7. Delivered an Invited lecture on “Career in Physics & Astrophysics”, at Govt. J.R. Dani Girls School, Raipur on 30<sup>th</sup> March 2013.
8. Delivered an Invited lecture on Opportunities and Challenges in Physics & Astrophysics at Bhilai Mahila Mahavidyalaya, Sector-9, Bhilai on 16<sup>th</sup> Jan 2014.
9. Delivered an Invited lecture on Astronomy & Astrophysics: Opportunities and Challenges at Govt. College Balod on 15<sup>th</sup> Jan 2015.
10. Delivered an invited lecture on Study of stars using telescopes as a part of celebration of “Astronomy Day” at Chhattisgarh Science Center, Raipur on 25<sup>th</sup> April 2015.
11. Delivered an invited lecture on “Importance of mathematics in Astronomy & Astrophysics” at S.P.C. College Nawapara, Rajim on 15 January 2016.
12. Delivered a talk on “Maths, Science and Astrophysics (Ganit, Vigyan aur Khagolvigyan)” at Chhattisgarh Science Center, Raipur on 20 September 2016.
13. 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.

#### **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.