

## CV of Ranjan Gupta

1. Name and DOB : Prof. Ranjan Gupta, Jan. 19, 1958
2. Date of Superannuation: Jan 31, 2018
3. Designation: Retired Senior Professor, Scientist 'H',  
Level L14  
Currently Consultant & Head IGO, IUCAA
4. Institution: IUCAA  
Post Bag 4, Ganeshkhind  
Pune-411007

5. Degrees conferred :

Degree	Institution conferring the degree	Field(s)	Year
B.Sc.(Hons)	Rajasthan University Jaipur	Physics (Honours) Chem. & Maths	1977
M.Sc.	Rajasthan University Jaipur	Physics	1979
Ph.D.	Physical Research Laboratory Ahmedabad	Physics	1987

6. Research/Teaching experience (in chronological order) :

Duration	Institution	Nature of work done
2 Years (1985-87)	Physical Research Laboratory Ahmedabad	Research
3 Years (1987-90)	Indian Institute of Geomagnetism Mumbai	Upper Atmospheric Research
25 Years (1990-till date)	IUCAA, Pune	Astronomy and Astrophysics Research and teaching Astronomy to MSc

7. PhD Students guided and ongoing:

PhD Students (completed and awarded degree): Arvind C. Ranade; Mahdi Bazarghaan; Archana Bora; Hillol K. Das; Nisha Katyal and Gautam Saikia

8. Research Interests:

- a. Astronomical Instrumentation
- b. Interstellar dust and its modeling
- c. Artificial Neural Networks and its application to stellar spectra

9. Membership of Committees etc.:

- Member of International Astronomical Union and IAU Commission 45 on Stellar Spectral Classification
- Member of Astronomical Society of India (ASI Membership no: 889/L)
- Member on technical committees for various Planetariums at Mumbai/Nashik/Surat/Delhi/Pune/Bhubhneswar/Patna etc
- Recognized PhD guide at Pune Univ/Guwahati Univ/Rajasthan Univ
- Member of Post Graduate Studies in Physics on Assam University, Silchar; Member of Board of Studies at Pondyicherry University, Pondyicherry.
- Member of Scientific Advisory Committee for Positional Astronomy Centre, Kolkata

10. International Collaborations and visits:

In past 25 years of my academic career, I had opportunity to be part of several international collaborations and under these had spent various durations at USA; UK; Germany; Canada; France; Spain, Italy; Russia; Japan; Australia and South Africa. At most of these countries I also had attended International Conferences in the field of my research.

## Publications list of Ranjan Gupta

K.C. Sahu, J.N. Desai, T.Chandrasekhar and **R.Gupta**, 1981 VIII Annual meeting of the Astronomical Society of India at Gorakhpur, Nov. 3-6, Proceedings Bull. Astron. Soc., India, 11,98. 'A study of the velocity structures of the planetary nebulae NGC 6720 and NGC 6210 using a pressure scanned photo-electric Fabry-Perot spectrometer'.

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N.S. Jog, R.T. Patel, **Ranjan Gupta** and P.V. Kulkarni, 1983, Jnl. of IETE, 29, 225. 'Rocket borne payload electronics system for 1.27 airglow.'

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K.C. Sahu, **Ranjan Gupta**, Meenakshi Srinivasan and J.N. Desai, 1985, Applied Optics, 24, 10. 'Detection of nebulosity around stars using a Fabry-Perot Spectrometer: a new Technique.

**Ranjan Gupta**, J.N. Desai, R. Raghavarao, R.Sekar, R.Sridharan and R. Narayanan, 1986, Geophys.Res.Lett..13, 1055. 'Excess heating over the equatorial latitudes during storm sudden commencement'.

K.C. Sahu, J.N. Desai, M. Srinivasan and **R.Gupta**, 1986, SPIE, 627, Instrumentation in Astronomy VI, 50. 'Technique and advantages of using multiple zone apertures in Fabry- Perot Spectroscopy.'

T. Chandrasekhar, C. Debi Prasad, J.N. Desai, N.M. Ashok and **Ranjan Gupta** 1987, Symposium on the Diversity and Similarity of Comets, 6-9 April 1987, Belgium ESA SP-278 (September, 1987), 567. 'Study of the ionic and neutral species in the coma of comet Halley with an Image Intensifier Camera'.

C. Debi Prasad, T. Chandrasekhar, J.N. Desai, **Ranjan Gupta** and N.M. Ashok and K.N. Padia, B. Gopal Krishnan, K.L. Majumdar and A.K.S. Gopalan, 1987. Proceedings of the workshop on "Image processing in Astronomy" held at Ooty in March 1987. 'Digital Image Processing of Comet Halley Images and Interferogram'.

C. Debi Prasad, T. Chandrasekhar, J.N. Desai, N.M. Ashok and **Ranjan Gupta**, 1987. Proceedings of the National Symposium on Comet Halley, held at Indian Institute of Astrophysics, Bangalore, October 27-29, 1987, Editors : K.R. Sivaraman and G.S.D. Babu, P.59-65. 'Interferometric observations of Comet Halley'. ing in Astronomy" held at Ooty in March 1987. 'Digital Image Processing of Comet Halley Images and Interferogram'.

**Ranjan Gupta** and C. Debi Prasad, 1991, Applied Optics, 30, 373. 'Instrumental Broadening caused by the misalignment function in a Fabry-Perot etalon assembly'.

**Ranjan Gupta**, 1992, ASP Conf. Ser. vol. 34, pp249-252, Robotic Telescopes in the 1990's, Ed. A. V. Fillipenko. 'APT's for Indian Universities'

R.K. Gulati, **Ranjan Gupta**, Pradeep Gothoskar and Shyam Khobragade, 1994, ApJ, vol.426, pp.340-344. 'Stellar Spectral Classification using Automated Schemes'.

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Soma Mukherjee, Ujjwal Bhattacharya, S. K. Parui, **Ranjan Gupta** and Ravi K. Gulati, 1996 *Astrophysics and Space Science* vol.239 pp 361-373. ‘A multi-layered backpropagation ANN algorithm for Spectral Classification of UV data’

R. K. Gulati, **Ranjan Gupta**, Pradeep Gothoskar and Shyam Khobragade, 1995, *ASP Conf. Ser.* vol. 77, pp253-256, *Astronomical data Analysis, Software and Systems IV*, Ed. R. A. Shaw et.al. ‘Automated classification of a large database of stellar spectra’

R. K. Gulati, **Ranjan Gupta** and N. K. Rao, 1997, *Astron. & Astrophys.*, 322, pp 933-937. ‘A comparison of synthetic and observed spectra for G-K dwarfs using artificial neural networks’

R. K. Gulati, **Ranjan Gupta** and Harinder P. Singh, 1997, *PASP*, vol. 110, pp 843. ‘E(B-V) determinations of O and B stars using artificial neural networks’

Harinder P. Singh, R. K. Gulati and **Ranjan Gupta**, *MNRAS*, 295, pp 312-318 (1998). ‘Stellar Spectral Classification using Principal Component Analysis and Artificial Neural Networks’

D.B. Vaidya and **Ranjan Gupta**, *A & A*, 328, pp634-640 (1997). ‘Extinction by porous silicate and graphite grains’

A.N. Ramaprakash, **Ranjan Gupta**, A.K. Sen and S.N. Tandon, *A & A Supp. Ser.* 128, pp369-375 (1998). ‘An Imaging Polarimeter (IMPOL) for multi-wavelength observations’

A.N. Ramaprakash, S.N. Tandon and **R. Gupta**, in *Proc. of the IAU Colloquium No. 166: The Local Bubble and Beyond*, D. Breitschwerdt, M. J. Freyberg and J. Trumper, Eds., *Lecture notes in Physics*, vol. 506, (1998). ‘Imaging polarimetry of nearby molecular clouds’

R.K. Gulati, **Ranjan Gupta** and H.P. Singh, in *Proc. of the conference "Ultraviolet Astrophysics, Beyond the IUE Final archive"*, Sevilla, Spain, 11-14 Nov. 1997, *ESA SP-413*, pp. 711-713, Feb. (1998). ‘Analysis of IUE

low-resolution spectra using Artificial Neural Networks'

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D.B. Vaidya and **Ranjan Gupta** A & A, vol.348, pp 594-599 (1999) 'Interstellar Extinction by Porous Grains'

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'Porous and Fluffy Grains in the Region of Anomalous Extinction'

**R. Gupta**, R.K. Gulati and H.P. Singh  
ASP Conf. Series, vol.223 (2001), CDROM page 791. The Eleventh Cambridge Workshop on Cool Stars, Stellar Systems and Sun – Challenges for the New Millenium, Oct. 4-8, Tenerife, Spain. Editors: R.J. Garcia-Lopez, R. Rebolo & M.R. Zapatero Osorio.  
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Light scattering by non-spherical particles: Halifax Contributions – 5th conference of light scattering by non-spherical particles, Ed. G. Videen, Q. Fu and P. Chylek, (2000) ISBN-0-9702316-0-1, pp.253  
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'Scattering properties of composite grains: application to comet dust'

Sixth conference on light scattering by nonspherical particles at Gainsville  
"Electromagnetism and light scattering by nonspherical particles" Eds. B.A.S. Gustafson, L. Kolokolova and G. Videen, pp 315-318, ISBN 0-9702316-2-8, A.R.L., Maryland, U.S.A. (2002)

Francisco Valdes, **Ranjan Gupta**, James A. Rose, Harinder P. Singh and David J. Bell

'The Indo-U.S. Library of Coude Feed Stellar Spectra'

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'An analysis of the distribution of background star polarization in dark clouds'

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**Ranjan Gupta**, Tadashi Mukai, D.B. Vaidya, Asoke K. Sen and Yasuhiko Okada

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'Reliability Checks on the Indo-US Stellar Spectral Library using Artificial Neural Networks and Principal Component Analysis'

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'Composite Interstellar Grains'

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'A Near-Infrared Stellar Spectral Library: II . K-Band Spectra'

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'Proposal for UV observations of star forming clouds'

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**Ranjan Gupta**, S. Jotin Singh and Harinder P. Singh

'Cross checking reliability of some available stellar spectral libraries using artificial neural networks'

in Stellar Populations as Building blocks of Galaxies, Proc. of IAU 241 Symposium at LaPalma, Tenerife, Spain during 10-16 Dec. 2006, Ed. A. Vazdekis and R. Peletier, CUP, p. 93 (2007)

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'Filling Gaps in the INDO-US Stellar Spectral Library using Principal Component Analysis'

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'A Near-Infrared Stellar Spectral Library: III. J-Band Spectra'  
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'Automated Classification of Sloan Digital Sky Survey (SDSS) Stellar Spectra using Artificial Neural Networks'  
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'A study of frequency and size distribution dependence of extinction for astronomical silicate and graphite grains'

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'Automated star-galaxy segregation using spectral and integrated band data for TAUVE X/ASTROSAT satellite data pipeline'

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New Astronomy, 14 (2009), 649-653

'Frequency and size distribution dependence of visible and infrared extinction for astronomical silicate and graphite grains'

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E. Hadamcik, A. K. Sen, A. C. Levasseur-Regourd, **R. Gupta** and J. Lasue  
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'A CCD photometric study of the late type contact binary EK Comae Berenices'

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jan Gupta**

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Asoke Sen, Amritaksha Kar and **Ranjan Gupta**

'Laboratory photometry of regolith analogues: Effect of porosity-II' Accepted for ICARUS, 2020

### **Books/Proceedings/Popular Articles :**

1. Automated Data Analysis in Astronomy

**Ranjan Gupta**, H. P. Singh and C. Bailer-Jones  
2001, Narosa Publishing, New Delhi

2. Basics of Astronomy – Block I – Unit 3 – Astronomical Techniques  
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'Dust and its Role in Interstellar Extinction'

**Ranjan Gupta**

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