



## Faculty Detail proforma for DU Web-site

Title	Prof.	First Name	Shobhit	Last Name	Mahajan	Photograph
Designation	Professor					
Address	Dept. of Physics & Astrophysics University of Delhi Delhi 110007					
Phone No	Office					
	Residence					
	Mobile					
Email	<a href="mailto:Shobhit.mahajan@gmail.com">Shobhit.mahajan@gmail.com</a>					
Web-Page	<a href="http://people.du.ac.in/~sm">http://people.du.ac.in/~sm</a>					
Educational Qualifications						
Degree	Institution				Year	
Ph.D.	University of California, Berkeley				1986	
M.Phil. / M.Tech.						
PG	University of California, Berkeley				1983	
UG	St. Stephen's College, University of Delhi				1980	
Any other qualification						
Career Profile						
2004- present: Professor, Dept. of Physics & Astrophysics, University of Delhi.						
1996-2004: Reader, Dept. of Physics & Astrophysics, University of Delhi.						
1993-1996: Senior Lecturer, Dept. of Physics & Astrophysics, University of Delhi.						
1991-1993: Senior Lecturer, St. Stephen's College, University of Delhi.						
1986-1991: Lecturer, St. Stephen's College, University of Delhi.						
1983-1986: Research Asst, Lawrence Berkeley Labs, Berkeley, California.						
1981-1983: Teaching Asst, Dept. of Physics, University of California, Berkeley, California.						
Administrative Assignments						
Director, Delhi University Computer Center, University of Delhi: 2004-2009						
Areas of Interest / Specialization						

<b>Particle Physics &amp; Cosmology, Biological networks</b>
<b>Subjects Taught</b>
<p>Mathematical Physics</p> <p>Electromagnetism</p> <p>Modern Physics</p> <p>Radiation Theory</p> <p>Computational Physics</p> <p>Electrodynamics</p> <p>Astrophysics</p> <p>Computer Lab</p> <p>Nuclear Physics Lab</p>
<b>Research Guidance</b>
<p><i>List against each head (If applicable)</i></p> <ol style="list-style-type: none"> <li>1. <i>Supervision of awarded Doctoral Thesis 6</i></li> <li>2. <i>Supervision of Doctoral Thesis, under progress 3</i></li> <li>3. <i>Supervision of awarded M.Phil dissertations</i></li> <li>4. <i>Supervision of M.Phil dissertations, under progress</i></li> </ol>
<b>Publications Profile</b>
<p><i>List against each head(If applicable) (as Illustrated with examples)</i></p> <ol style="list-style-type: none"> <li>1. <i>Books/Monographs (Authored/Edited)</i></li> <li>1. "More than 150 Unusual facts about Computers", published by Scholastic Inc.(2002)</li> <li>2. "More than 150 Unusual Inventions", published by Scholastic Inc.(2003)</li> <li>3. "Eminent Scientists", published by Scholastic Inc.(2003)</li> <li>4. "More than 150 Unusual facts about Physics", published by Scholastic Inc.(2004)</li> <li>5. "From Bugs to Blackholes", Penguin Books. ( 2005)</li> <li>6. "Environment in my pocket", Scholastic Inc. (2006).</li> <li>7. "103 Scientific Principles, Ideas, Theories &amp; Stuff", Scholastic Inc. (2006).</li> <li>8. "The Story of Steel", a set of 4 books for young adults, Pratham Books, (2007).</li> <li>9. "Physics in my Pocket- A Reference Book", Scholastic Inc. (2007).</li> <li>10. " A Quiz Book of Physics", Scholastic Inc. (2008).</li> <li>11. "A Quiz Book of Mathematics", Scholastic Inc. (2008).</li> <li>12. "The Story of Invention", Ullman Publishing. (2008).</li> </ol>

13. "Concepts of Modern Physics, Sixth Edition" (with A. Beiser & S. Rai Choudhury), McGraw Hill. (2009).
14. "The Story of Science" Ullman Publishing. (2010).
15. "Scholastic Quiz Book" Scholastic Publishing. (2010).
16. "Get the Facts: Physics", Scholastic Publishing. (2010).
17. "Electricity, Magnetism & Electromagnetic Theory, (with S. Rai Choudhury), McGraw Hill. (2012).
18. "Get the Facts: Information Technology & Computers , Scholastic Publishing (2013).
19. "Concepts of Modern Physics, Seventh Edition" (with A. Beiser & S. Rai Choudhury), McGraw Hill. (2015).
20. "Science & Society", (manuscript under preparation)

Authored a report on Issues in Higher Education in Science, Observer Research Foundation, 2007.

Contributed a chapter on "Higher Education in the Sciences in India" to the volume on Indian Science Education (forthcoming), Edited by S. Irfan Habib.

Contributed a chapter on "Science & Mathematics Education in Schools & Colleges in India" to a 'Handbook of Education' (forthcoming), Edited by Krishna Kumar.

Translated 2 books ("A Folk Tale from Argentina" & "A Folk Tale from Mynamar") from English to Hindi for Pratham Books.

Have also translated 4 pamphlets on Everyday Science from English to Hindi to be used in primary and middle schools. (2004)

Translated 4 books for Science for Children from English to Hindi for Pratham Books. (2005)

## 2. *Research papers published in Refereed/Peer Reviewed Journals*

1. Models of inflation with a low supersymmetry breaking scale", (with P. Binetruy), Nuclear Physics B 263, pp 413- (1986).
2. A mechanism for baryon generation in super symmetric cosmologies", Physical Review, D 33, pp 338- (1986).
- 3 Cosmological models consistent with SUSY compactification in superstring theories", (with A. Mukherjee, R. P. Saxena, S. Kumar, and N. Panchapakesan), Pramana 34, No. 5, pp 415 (1990).
4. A lower bound on the Higgs boson and Top quark mass from constraint on the Higgs coupling", (with A. Mukherjee, S. K. Sethi, N. Panchapakesan and R. P. Saxena), Modern Physics Letters A, Vol. 6, No. 18, pp 1731- (1991).
5. Cosmological Lower limit on Higgs boson mass in presence of a heavy fermion", (with A. Mukherjee, S. K. Sethi, N. Panchapakesan and R.P. Saxena), Delhi University Report, (1993).
6. Dark Matter: Why and What ?", Invited Talk at the X DAE-HEP Symposium ,

Pramana Suppl. Vol. 41, pp 455-(1993).

7. RG improved bounds on Higgs and top mass from electroweak baryogenesis", (with S. K. Sethi, N. Panchapakesan, R. P. Saxena, A. Mukherjee and A.S. Mazumdar), Modern Physics Letters A, Vol. 9, No. 5, pp. 459- (1994).

8. Studies in Structure formation in theories with a repulsive long range gravitational force", (with D. Lohiya, A. Batra, S. Mehra and A. Mukherjee) , paper presented at the III International Conference on Gravitation & Cosmology, Pune, 1995, preprint gr-qc/9601039, Astrophysical and Astronomical Transactions, Vol. 13, pp 1, 1997.

9. Constraints on the Cosmological Constant from Gravitational Lenses in an Evolutionary Model of galaxies" ,(with D. Jain, V.B. Bhatia and N. Panchapakesan), preprint astro-ph/9803128, International Journal of Modern Physics A, Vol. 13, No. 24, pg. 4227-36, 1998.

10. Topological defects and conditions for baryogenesis in the Left- Right symmetric model", (with U.Yagnik, H.Widyan, A. Mukherjee and D. Choudhury), preprint hep-ph/9805276, 1998.

11. Topological Defects in the Left-Right Symmetric Models and their relevance to cosmology", (with U.Yagnik, H.Widyan, A. Mukherjee and D. Choudhury), preprint hep-ph/9812406, Physical Review D, May 15, 1999.

12. Gravitational Lensing Limits on Average Redshift of Gamma Ray Bursts from evolving galaxies", ( with D. Jain, N. Panchapakesan and V.B. Bhatia), paper presented at the XIX Astronomical Society of India Meeting, Bangalore, 1999, preprint astro-ph/9902154, International Journal of Modern Physics D, Vol. 8, No. 4, pg. 507-514, 1999.

13. Constraint On Galaxy Evolution Through Gravitational Lensing Statistics", (with D. Jain, N. Panchapakesan, V. B. Bhatia), preprint astro-ph/991104, Modern Physics Letters A, Vol. 15, No. 1, pg. 41, 2000.

14. Limit on Average Redshift of Gamma Ray Bursts from evolving galaxies", (with D. Jain, N. Panchapakesan, V. B. Bhatia), Bulletin Of Astronomical Society of India, Vol. 28, pg. 377, 2000.

15. Nucleosynthesis in a universe with a linearly evolving scale factor", ( with A. Batra, A. Mukherjee and D. Lohiya), International Journal of Modern Physics D, Vol. 10, No.1, 2001.

16. Cosmic Equation of State, Gravitational Lensing Statistics & Merging of Galaxies", (with A. Dev, D. Jain, N. Panchapakesan and V.B. Bhatia), International Journal of Modern Physics D, vol. 12, no. 1, 101, 2003, preprint astro-ph/0104076.

17. Gravitational Lensing constraint on the Cosmic Equation of State", (with A. Dev , D. Jain, N. Panchapakesan and V.B. Bhatia), International Journal of Modern Physics D, Vol.12, No. 2, 2003, preprint astro-ph/0105551

18. Probing large distance higher dimensional gravity from lensing data", ( with S.R.Choudhury, G.C.Joshi and Bruce Mckellar), Astroparticle Physics Vol. 21, No. 5, pg. 559,, 2004, preprint hep-ph/0204161

19. A Freely Coasting Universe" ( with S. Gehlout, D. Lohia and A. Mukherjee), Spacetime & Substance, 14/4, 2002, preprint astro-ph/0209209

20. A Concordant Linear Coasting Cosmology" ( with S. Gehlout, D. Lohia and A. Mukherjee), Paper presented at PASCOS, T.I.F.R, Mumbai, 2003. To be published in Pramana.

21. "Dark Energy & the study of the Observed Image Separations of the Multiply Imaged Systems in the CLASS Statistical Sample", ( with A. Dev and D. Jain), International Journal Of Modern Physics- D, Vol. 13, No. 6 , 1005, 2004, preprint astro-ph/0307441 .
22. "Effect of radiation on the stability of equilibrium points in the binary stellar systems: RW-Monocerotis, Kruger 60", (with M.K. Das, Pankaj Narang, M, Yuasa), Astrophysics & Space Sciences , 314, 4,261- (2008).
23. "Effect of radiation on the stability of a retrograde particle orbit in different stellar systems", (with M.K. Das, Pankaj Narang, M, Yuasa), Planetary & Space Science, 57, 836- (2009).
24. "On Out of Plane Equilibrium Points in Photo-Gravitational restricted three-body problem", (with M.K. Das, Pankaj Narang, M, Yuasa), Journal of Astrophysics & Astronomy, 30, 34, 177- (2009).
25. "Transition Redshift: New constraints from parametric and nonparametric method", (with Nisha Rani, Deepak Jain, Amitabha Mukherjee & Nilza Peres), Journal of Cosmology & Astrophysics, 12, 045,(2015).
26. "Revisiting the Distance Duality Relation using LOESS and SIMEX", (with Akshay Rana, Deepak Jain, and Amitabha Mukherjee), arXiv:1511.09223v1[ astro-ph.CO], 2015 Submitted to Journal of Cosmology & Astrophysics, 2016.

*a) Research papers published in Academic Journals other than Refereed/Peer Reviewed Journals*

- 1 "Topics in Inflationary Cosmologies", PhD Thesis, LBL - 21436, 1986.
2. "Introduction to Inflationary Models", Invited Lectures, 1987 UGC School on Early Universe.
3. "Early Universe", Invited lectures, SERC School in High Energy Physics, 1988.

*b) Research papers published in Refereed/Peer Reviewed Conferences*

1. "Can the Many Worlds Interpretation solve the measurement problem", (with R. Nair), Paper presented at ISQR 1989- 90.
2. "Helium Production in a cosmological model with a linearly evolving scale factor", (with D. Lohiya and A. Mukherjee) , Delhi University Report, 1995.
3. "Light Element synthesis in a cosmological model with repulsive gravity", (with D. Lohiya and A. Mukherjee), Paper presented at the XVII International Symposium on Lepton-Photon Interactions, Beijing, 1995.

4. "Nucleosynthesis in a simmering universe", (with D. Lohiya, A. Batra, and A. Mukherjee), paper presented at the XII DAE Symposium, Guwahati, 1996, preprint astro-ph/ 9606082
5. "Constraints on the Cosmological Constant from Gravitational Lenses", ( with D. Jain, V.B. Bhatia and N. Panchapakesan), paper presented at the XII DAE Symposium, Guwahati, 1996.
6. "Effect of Galaxy Evolution on the Statistical Properties of Gravitational Lenses", ( with D. Jain, N. Panchapakesan and V.B. Bhatia), preprint astro-ph/9807192, 1998.
7. "Effect of galaxy evolution on the average redshift of GRBs", (with D. Jain, N. Panchapakesan and V.B. Bhatia), paper presented at the XIII, High Energy Physics Symposium, Chandigarh, 1998.
8. "Gravitational Lensing Bound on the Average Redshift of Gamma Ray Bursts in models with evolving lenses", (with D. Jain, N. Panchapakesan and V.B. Bhatia), paper presented at the Mini Workshop on Gamma Ray Bursts, IUCAA, August 1999.
9. "Gravitational Lens Statistics and their use in constraining evolution of galaxies", (with D. Jain, N. Panchapakesan, V. B.Bhatia), paper presented at the IV International Conference on Gravitation and Cosmology, Kharagpur, January 2000.

*c) Research papers Published in Conferences/Seminar other than Refereed/Peer Reviewed Conferences*

3. *Other publications (Edited works, Book reviews, Festschrift volumes, etc.)*

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<http://people.du.ac.in/~sm>

#### Conference Organization/ Presentations (in the last three years)

*List against each head(If applicable)*

1. *Organization of a Conference*
2. *Participation as Paper/Poster Presenter*

#### Research Projects (Major Grants/Research Collaboration)

Please see complete CV

#### Awards and Distinctions

National Merit Scholarship, 1977.

National Science Talent Scholarship, 1977-81.

President's Gold Medal, University of Delhi, 1981.

Apple Distinguished Educator Award, 2006.

#### Association With Professional Bodies

1. *Editing*
2. *Reviewing*
3. *Advisory*
4. *Committees and Boards*
5. *Memberships*
6. *Office Bearer*

#### Other Activities

Director, Industrial Finance Corporation of India (IFCI), 2007-2013.

Director, IFCI Financial Services (IFIN) Ltd., 2008-2013.

Member, Board of Governors, Management Development Institute, Gurgaon, 2007-2013.

Chairperson, H.R. Committee, Management Development Institute, Gurgaon, 2009-2010.

Member, Expert Committee, Delhi Government for evaluation of Wi-Fi access proposals, 2007-2008.

Member, Managing Committee, Cambridge School, Noida, 2008-09.

Member, Managing Committee, Cambridge School, Srinivaspuri, 2009-.

Member, Board of Governors, Institute of Leadership Development, Jaipur, 2008-2013.

Member, Expert Committee for evaluation of proposals for Samajik Suvidha Sangam, Delhi Government, 2009-10.

Member, ERNET committee on GEANT Project, 2006.

Member, Technical Review Committee for E-Governance, NIFT, Delhi, 2006-07.

Chairman, Committee for Networking & Information Technology Resources, ICSSR, Delhi, 2005, 2006, 2007.

Member, Acquisition Committee of NASSDOC, ICSSR, 2005, 2006, 2007.

Member, Joint Cadre Review Committee for ICT Services Cadre, U.G.C, 2006- .

Chairman, Expert Team For review of NARS, ICAR, 2007-2008.

Member, Focus Group on "Habitat & Learning", National Core Group on Curriculum Reform. 2005.

Member, Core Group to monitor the implementation of the Supreme Court order for Environmental Education in schools. 2005

Treasurer and Founding Trustee, Dr. Arvind N. Das Foundation for Critical Social and Cultural Studies.

Founding Trustee, Om Charitable Foundation, New Delhi.

Member, Research Degree Council & Board of Studies, Kumaun University, Nainital.

Member, Advisory Board, Mahatma Gandhi Law College, Gwalior