

Name : Dr Manmohan Gupta (dob Feb 13 1951)

Department of Physics

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Present Designation : **Professor of Physics(re-employed)**

Co-ordinator CRIKC

Chandigarh Region Innovation and Knowledge Cluster)

Visiting Professor IISER Mohali

Member of CRRID (Centre for Research in Rural and

Industrial Development, Chandigarh)

1. **Harvard Alumnus as an Associate of Nobel laureate S L Glashow (1983-85)**
2. Throughout University position holder.
3. Visiting scientist Stanford 1984, 1992.
4. Visiting Assistant Professor(1991-92) **Institute of theoretical Science UO Eugene OR USA**
5. Presently **regular visitor to Institute of Advanced Study** NTU Singapore
6. **Chairman department** of Physics (one of the largest dept. of PU) June 2007 – June 2010.
7. **Coordinator Centre of advanced Study** in Physics Aug 2004 – Feb 2011.
8. **Member of prestigious Physical Sciences Research Committee of CSIR (Govt. of India) March 2008 – till date.**
9. **Editor-in-Chief** Panjab University Research Journal (Science) Oct 2006 – April 2010
10. **Editor** Bulletin of Indian Association of Physics Teachers (July 2011 -)

11. **President (RC3)** Indian Association of Physics Teachers (July 2010- December 2012)
12. **President** Indian Physics Association (July 2009-)
13. **Member of several** important committees of the University.
14. **Guided 8 PhD's and several M Phil's single handedly. Four PhD scholars and two post docs working at present with me.**
15. **Amongst the first ones to propose several new ideas such as 'mixed nucleon' Texture 4zero matrices, CP-violation in the leptonic sector etc.n the literature.**
16. **Almost 100 research papers 60 of which are in journals of international Repute.**
17. **More than 700 Citations including citations by many reputed scientists.**
18. **On the panel of referees for several Journals of international repute.**
19. Given invited talks at several international conferences as an expert in my area of research activity.
20. Given **talks** on topics of **broad societal interest, such as 'Science and Society', science and spirituality' etc**
21. Given popular talks on scientific topics to school children.
22. Member of important UGC Committees on several occasions.
23. **Taught at all levels i.e. from Undergraduate to pre-PhD level for the last 34 years**

List of Publications

. Investigating texture six zero lepton mass matrices

Neelu Mahajan (Panjab U.), Monika Randhawa (Panjab U., UIET), Manmohan Gupta (Panjab U.), P.S. Gill (Sri Guru Gobind Singh Coll.).. 15 pp.

Published in **Prog. Theor. Exp. Phys.** 2013, 083B02 (2013)

e-Print: [arXiv:1010.5640](https://arxiv.org/abs/1010.5640) [hep-ph] | [PDF](#)

. Implications of theta₁₃ on Fritzsche-like lepton mass matrices

Priyanka Fakay, Samandeep Sharma, Rohit Verma, Gulsheen Ahuja, Manmohan Gupta. Jan 2013. 18 pp.

e-Print: [arXiv:1301.5970](https://arxiv.org/abs/1301.5970) [hep-ph] **Physics Letters B720 (2013) 366-372**

Flavor mixings and textures of the fermion mass matrices

Manmohan Gupta, Gulsheen Ahuja (Panjab U.). 2012. 100 pp. **(LONG REVIEW)**

Published in **Int.J.Mod.Phys. A27 (2012) 1230033**

Revisiting the possibility of New Physics in the K-K_{bar} and B_d-B_d_{bar} Systems

Gulsheen Ahuja, Rohit Verma, Priyanka Fakay, P S Gill, Manmohan Gupta.

Published in **Mod.Phys. Letters A27 (2012) 1250125**

Possible textures of the fermion mass matrices.

Manmohan Gupta, Gulsheen Ahuja (Panjab U.). 2011. 23 pp.

Published in **Int.J.Mod.Phys. A26 (2011) 2973-2995**

e-Print: [arXiv:1206.3844](https://arxiv.org/abs/1206.3844) [hep-ph] [PDF](#)

Exploring the parameter space of texture 4 zero quark mass matrices.

Rohit Verma, Gulsheen Ahuja, Neelu Mahajan, Monika Randhawa, Manmohan Gupta, . Apr 2010. 13pp.

Published in **J.Phys.G37:075020,2010**.
e-Print: **arXiv:1004.5452** [hep-ph]

Spin $1/2^+$, spin $3/2^+$ and transition magnetic moments of low lying and charmed baryons.

[Neetika Sharma](#), [Harleen Dahiya](#), [P.K. Chatley](#), ([Ambedkar, Nat. Inst. Technol.](#)) , [Manmohan Gupta](#), ([Panjab U.](#)) . Mar 2010. (Published Apr 1, 2010). 18pp.

Published in **Phys.Rev.D81:073001,2010**.
e-Print: **arXiv:1003.4338** [hep-ph]

Investigating non-Fritzsch like texture specific quark mass matrices.

[Neelu Mahajan](#), ([Panjab U.](#)) , [Rohit Verma](#), ([Railmajra, Rayat Inst. Eng. Info. Tech.](#)) , [Manmohan Gupta](#), ([Panjab U.](#)) . Sep 2009. 10pp.

Published in **Int.J.Mod.Phys.A25:2037-2048,2010**.
e-Print: **arXiv:0909.4843** [hep-ph]

Implications of CP asymmetry parameter $\sin 2\beta$ on structural features of texture specific mass matrices.

[Rohit Verma](#), ([Railmajra, Rayat Inst. Eng. Info. Tech.](#)) , [Gulsheen Ahuja](#), [Manmohan Gupta](#), ([Panjab U.](#)) . Sep 2009. 13pp.

Published in **Phys.Lett.B681:330-335,2009**.
e-Print: **arXiv:0909.4363** [hep-ph]

Texture specific mass matrices with Dirac neutrinos and their implications.

[Gulsheen Ahuja](#), [Manmohan Gupta](#), ([Panjab U.](#)) , [Monika Randhawa](#), ([Punjab Eng. Coll.](#)) , [Rohit Verma](#), ([Railmajra, Rayat Inst. Eng. Info. Tech.](#)) . Apr 2009. (Published Apr 2009). 21pp.

Published in **Phys.Rev.D79:093006,2009**.
e-Print: **arXiv:0904.4534** [hep-ph]

Semi-leptonic Octet Baryon Weak Axial-Vector Form Factors in the Chiral Constituent Quark Model.

[Harleen Dahiya](#), [Neetika Sharma](#), [P.K. Chatley](#), [Manmohan Gupta](#) ([Panjab U.](#)) . Dec 2008. 5pp. e-Print: **arXiv:0812.3735** [hep-ph]

Phys Rev D Phys.Rev.D79:077503,2009.

Spin and Flavor Strange Quark Content of the Nucleon.

[Harleen Dahiya](#), [Manmohan Gupta](#) ([Panjab U.](#)) . Jun 2008. 15pp.

Published in **Phys.Rev.D78:014001,2008.**

e-Print: **arXiv:0806.0692** [hep-ph]

Constructing the Leptonic Unitarity Triangle.

[Gulsheen Ahuja](#), [Manmohan Gupta](#) ([Panjab U.](#)) .

Phys Rev D 77,057301(2008)

e-Print: **hep-ph/0702129** 8pp.

x-dependence of the quark distribution functions in the chCQM(config).

[Harleen Dahiya](#), [Manmohan Gupta](#) ([Panjab U.](#)) . Sep 2007. 20pp.

Published in **Eur.Phys.J.C52:571-579,2007.**

e-Print: **arXiv:0709.1996** [hep-ph]

Strangeness in the Nucleon.

[Harleen Dahiya](#), [Manmohan Gupta](#) ([Panjab U.](#)) . Jun 2007. 4pp.

To appear in the proceedings of International Workshop on Theoretical High Energy Physics (IWTHEP 2007), Roorkee, UA, India, 15-20 Mar 2007.

Published in **AIP Conf.Proc.939:3-6,2007.**

e-Print: **arXiv:0706.3258** [hep-ph]

Texture 4 zero Fritzsch-like lepton mass matrices.

[Gulsheen Ahuja](#) ([Panjab U.](#)) , [Sanjeev Kumar](#) ([Himachal Pradesh U.](#)) , [Monika Randhawa](#) ([Punjab Eng. Coll.](#)) , [Manmohan Gupta](#) ([Panjab U.](#)) , [S. Dev](#) ([Himachal Pradesh U.](#)) . Mar 2007. 15pp.

Published in **Phys.Rev.D76:013006,2007.**

e-Print: **hep-ph/0703005**

Implications of eta' Coupling in the Chiral Constituent Quark Model.

[Harleen Dahiya](#), [Manmohan Gupta](#) ([Panjab U.](#)) , [J.M.S. Rana](#) ([Garhwal U.](#)) . Feb 2007. 7pp.

Presented at 17th International Spin Physics Symposium (SPIN06), Kyoto, Japan, 2-7 Oct 2006. Published

in **AIP Conf.Proc.915:474-477, 2007**. Also in *Kyoto 2006, Spin physics* 474-477
e-Print: **hep-ph/0702139**

Some of the important recent invited talks delivered/conferences attended.

Invited lecture entitled ,‘Spin and Flavor content of the Nucleon in The Chiral Quark Model’ delivered at ‘Int Conference In Honour of Murray Gell-Mann’s 80th birthday’ held at IAS NTU Singapore 24th Feb-26th Feb 2010.

invited talk entitled,‘Possible textures of the fermion mass matrices’at International conference on ‘Flavor Physics in the LHC era’ held at NEC Singapore, (8th - 12th Nov,2010).

Invited talk entitled ,‘**Implications of precision measurements on fermion mass matrices**’ delivered at ‘Work shop on Particle Physics and Cosmology’ held at IAS NTU Singapore 22nd July 2011.

Invited lecture ‘Teaching Physics : personal perspectives’ at Zonal convention – cum –workshop on Education in Physics and related Sciences held by IAPT(RC -3) held on Nov. 6 and 7th (2011)at Guru Nanak Public School Sarabha Nagar Ludhiana.

Invited lecture, ‘Challenges for middle level teachers for making an effective teaching Unit’ **17th November** 2011 Academic Staff College PU Chandigarh.

Invited lecture, ‘Challenges of teaching and teaching profession’ **30th November** academic staff college PU Chandigarh.

Invited talk entitled ‘**Texture specific fermion mass matrices and their compatibility with SO(10) inspired mass matrices**’ delivered at 1st IAS-CERN winter school on high energy physics and cosmology on 27th Jan at IAS NTU Singapore.

Invited lecture, ‘**Nature of physical reality at high energies**’ delivered at GGSD college Chandigarh on 11th Feb 2012.

Invited lecture, ‘A journey from Classical Mechanics to Quantum Mechanics’ delivered at the INSPIRE work -shop held at GGS Indraprastha university Dwarka New Delhi 11th to 15th June.

Invited lecture, '**Strategies for Developing a Successful Teaching Unit**' **3rd August** 2012 Academic Staff College PU Chandigarh.

Invited lecture, '**A journey from macroscopic to microscopic**' delivered at work -shop held for teachers at Kendriya Vidyalay sector 29-B Chandigarh 1st Jan 2013

Panel Discussion , 'Mentor-Mentee Relationship' 30th Jan 2013 Academic Staff College PU Chandigarh.

Invited lecture, '**Introduction to gauge theories**' delivered at NIIT Jalandhar 30^h April 2013.

Invited lecture, '**Rutherford's alpha scattering to Large Hadron Collider**' delivered at NIIT Jalandhar on 10th June 2013.

'Higgsonics' a talk given at Deptt of Physics atPU Chandigarh organisd on the Occasion of Nobel Prize in Physics

Invited talk at Symposium on collaboration between industries and academia IISER Pune Oct 28-29,entitled,Knowledge Custers and industry academia interaction

Attended as PU representative,'National Policy dialogue on University Rankings, Evaluations and research fundings' held at Hotel le meridian New delhi on 23rd May 2013.

Invited lecture, 'Challenges for middle level teachers for making an effective teaching Unit' **6th August** 2013 Academic Staff College PU Chandigarh

'Role of Basic Science in Engineering' lecture delivered at golden Jubilee Hall PU on 11th November under 'Faculty improvement program' of UIET PU Chandigarh.

Prticipated in British Council sponsored program 'Global education Dialogue series : Higher Education in South Asian' series Dubai 28-29th November.