

Curriculum Vitae
POONAM MEHTA

ADDRESS

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DATE OF BIRTH

June 04, 1977

EDUCATION

- 2004 **Ph. D.**, Physics, Department of Physics and Astrophysics,
University of Delhi, Delhi
Advisor : Prof. Ashok K. Goyal
Thesis : Testing physics beyond the Standard Model in neutrino
sector
- 1999 **M. Sc.** in Physics, Department of Physics and Astrophysics,
University of Delhi, Delhi
Specialisation : Astrophysics and Computational Physics
- 1997 **B. Sc.** in Physics(Honours), Acharya Narendra Dev College,
University of Delhi, Delhi

PROFESSIONAL EMPLOYMENT

- Dec. 15, 2005 - present Visiting Fellow, Weizmann Institute of
Science, Rehovot, Israel
- Sept. 21, 2004 - Dec. 10, 2005 Post Doctoral Fellow, Harish-Chandra Research
Institute, Allahabad, India

AREA OF RESEARCH

High energy physics, Neutrino physics

PUBLICATIONS / PREPRINTS

- (1) R. Gandhi, P. Ghoshal, S. Goswami, P. Mehta and S. Uma Sankar,
Probing the ν mass hierarchy via atmospheric $\nu_\mu + \bar{\nu}_\mu$ survival rates in megaton water cerenkov detectors,
hep-ph/0506145, Submitted to **Phys. Rev. D**.
- (2) R. Gandhi, P. Mehta and S. Uma Sankar,
Neutrino detectors of the future : A comparison table,
INO Preprint, INO/HRI/2005/03.
- (3) R. Gandhi, P. Ghoshal, S. Goswami, P. Mehta and S. Uma Sankar,
Earth Matter Effects at Very Long Baselines and the Neutrino Mass Hierarchy,
Phys. Rev. D **73**, **053001** (2006), hep-ph/0411252.
- (4) R. Gandhi, P. Mehta and S. Uma Sankar,
Matter effects in Atmospheric μ^-/μ^+ in Magnetized Iron Calorimeters,
A note prepared for Solar and Atmospheric Working Group of American Physical Society,
HRI Preprint, HRI-P-04-10-001.
- (5) R. Gandhi, P. Ghoshal, S. Goswami, P. Mehta and S. Uma Sankar,
Large matter effects in $\nu_\mu \rightarrow \nu_\tau$ oscillations,
Phys. Rev. Lett. **94**, **051801** (2005), hep-ph/0408361.
- (6) A. Datta, R. Gandhi, P. Mehta and S. Uma Sankar,
Atmospheric neutrinos as a probe of CPT Violation,
Phys. Lett. B **597**, **356** (2004), hep-ph/0312027.
- (7) A. Goyal, P. Mehta and S. Dutta,
Heavy quark production via leptoquarks at a neutrino factory,
Phys. Rev. D **67**, **053006** (2003), hep-ph/0209019.
- (8) P. Mehta, S. Dutta and A. Goyal,
Leptoquark signals via neutrino interactions at neutrino factories,
Phys. Lett. B **535**, **219** (2002), hep-ph/0107214.
- (9) A. Datta, R. Gandhi, B. Mukhopadhyaya and P. Mehta,
Signals of R-parity violating supersymmetry in neutrino scattering at muon storage rings,
Phys. Rev. D **64**, **015011** (2001), hep-ph/0011375.

CONFERENCE PROCEEDINGS

- (1) P. Mehta,
Atmospheric neutrinos as a probe of CPT violation,
Poster presented at the XXIst International Conference on Neutrino Physics and Astrophysics (Neutrino - 2004),
Nucl. Phys. B. (Proc. Suppl.) 143, 503 (2005).
- (2) A. Datta, R. Gandhi, B. Mukhopadhyaya and P. Mehta,
Signals of R-parity violating supersymmetry at a muon storage ring,
Proceedings of the XIV DAE Symposium on High Energy Physics (2000),
hep-ph/0105137.

WORKING GROUP REPORTS

- (1) The Indian Neutrino Observatory (INO) Collaboration,
Interim Project Report on the Feasibility Studies,
submitted to the funding agencies on 01 May, 2005.
For more details, See <http://www.imsc.res.in/~ino>.
- (2) S. Goswami *et al.*,
Working group report: Neutrino and Astroparticle Physics, Proceedings of 8th Workshop on High-Energy Physics Phenomenology (WHEPP-8), IIT Mumbai, India (January 05 - 16, 2004).
Pramana 63, 1391 (2004), hep-ph/0409225.

ACADEMIC RECOGNITION, AWARDS AND SCHOLARSHIPS

- (1) Awarded the **International Union of Pure and Applied Physics (IUPAP)** Women in Physics Travel Grant in **August 2005** for attending the Les Houches School on Particle Physics beyond the Standard Model in Les Houches, France.
- (2) Awarded the **Department of Science and Technology (DST)** Partial Travel Grant in **June 2004** for attending Neutrino 2004 in Paris, France.
- (3) Qualified the National Eligibility Test (**NET**) conducted by UGC - CSIR in **December 1998** bearing Roll No. 66214 and was awarded **CSIR Fellowship**.
- (4) Awarded **All India Post Graduate Scholarship (AIPGS)**, by University of Delhi, during 1997 - 1999.
- (5) Awarded **Science Merit Awards**, by University of Delhi, in the year 1996 and in 1998.
- (6) Awarded **Merit Scholarships**, by Acharya Narendra Dev College, University of Delhi, in the years 1995, 1996 & 1997.

SKILLS SUMMARY

- (1) Extensively programmed and developed algorithms for 6 years using F77; familiar with C
- (2) Operating systems: UNIX, Linux, Windows
- (3) Packages: Latex, Gnuplot, Xmgrace, JaxoDraw, Gifsicle, GEANT, NUANCE, Mathematica, familiar with MATLAB
- (4) Comprehensively used the Numerical Recipes Fortran-77 libraries for numerical exercises to solve differential equations, performed integrations, interpolation and a host of other numerical problems

INVITED PRESENTATIONS AT CONFERENCES AND WORKSHOPS

- (1) **INO Simulations Meeting**, IMSc, Chennai, India (March 28 - 30, 2005).

Talk : *New physics issues for simulations @ INO.*

- (2) **XXIst International Conference on Neutrino Physics and Astrophysics (Neutrino 2004)**, Collège de France, Paris, France (June 14 - June 19, 2004).

Poster : *Atmospheric neutrinos as a probe of CPT violation.*

- (3) **International Conference on Perspectives in Particle Physics, Gravity and Cosmology**, PRL, Ahmedabad, India (March 30 - April 03, 2004).

Talk : *ν_μ survival probability : A probe of neutrino oscillation parameters.*

- (4) **Workshop on High Energy Physics Phenomenology (WHEPP8)**, IIT Mumbai, India (January 05 - 16, 2004).

Talk : *Atmospheric neutrinos as a probe of CPT and Lorentz violation.*

- (5) **INO Meeting**, SINP, Calcutta, India (September 09 - 10 , 2002).

Talk : *Some simulation results using NUANCE and GEANT.*

- (6) **XIV DAE Symposium on High Energy Physics**, University of Hyderabad, India (December 18 - 22 , 2000),

Talk : *Signals of R-parity Violating Supersymmetry at a Muon Storage Ring.*

OTHER CONFERENCES AND SCHOOLS

- **(1) Research Workshop of the Israel Science Foundation on Nuclear Structure and Astrophysics with Radioactive beams**, Weizmann Institute of Science, Rehovot, Israel (June 4 - 6, 2006).
- **(2) John Bahcall Physics Day**, Tel Aviv University, Tel Aviv, Israel (April 30, 2006).
- **(3) INO Simulations Meeting**, HRI, Allahabad, India (October 24 - 26, 2005).
- **(4) The Les Houches School on Particle Physics beyond the Standard Model**, Les Houches, France (August 01 - 26, 2005).
- **(5) INO Simulations Meeting**, IMSc, Chennai, India (March 28 - 30, 2005).
- **(6) School on Astroparticle Physics and Cosmology**, ICTP, Trieste, Italy (June 28 - July 10, 2004).
- **(7) Interaction Meeting on INO, SINP & VECC**, Calcutta, India (March 31 - April 02, 2003).
- **(8) INO Meeting**, TIFR, Mumbai, India (January 09, 2003).
- **(9) IX International Symposium on Particles, Strings and Cosmology (PASCOS'03)**, TIFR, Mumbai, India (January 03 - 08, 2003).
- **(10) School on Neutrino Physics and Astrophysics (NEUPAST)**, ICTP, Trieste, Italy (September 23 - October 04, 2002).
- **(11) XVI SERC School on Theoretical High Energy Physics**, HRI, Allahabad, India (February 25 - March 16, 2001).
- **(12) Introductory School in Astronomy & Astrophysics (ISAA'98)**, Sri Venkateswara College, University of Delhi, Delhi, India (October 05 - 09, 1998).
- **(13) Introductory Summer School in Astronomy & Astrophysics**, IUCAA, Pune, India (May 18 - June 05, 1998).

VISITS TO OTHER INSTITUTES

- (1) Department of Particle Physics, Weizmann Institute of Science, Rehovot, Israel. (June 02 - September 02, 2005)
- (2) IMSc, Chennai, India. (March 26 - April 03, 2005)
- (3) High Energy Section, ICTP, Trieste, Italy. (June 19 - July 12, 2004)

SEMINARS

- (1) TIFR, Homi Bhabha Road, Mumbai, India (July 20, 2004).

Title : *Atmospheric neutrinos as a probe of CPT violation.*

- (2) HRI, Allahabad, India (February 06 , 2004).

Title : *Atmospheric neutrinos as a probe of CPT and Lorentz violation.*