

CURRICULUM VITAE

Anindya Datta

Date of Birth : 8. 1. 1969

Nationality : Indian

Marital Status : Married

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Educational background:

Ph. D. : from University of Calcutta
in Theoretical Particle Physics in the year 2000
(thesis submitted in 1999)

Thesis Title : *Search for New Physics at Present
and Future Colliders*

M. Sc. : from University of Calcutta
in Physics in the year 1992 (result published in 1993)
marks obtained 78.7 %.

B. Sc. : from University of Calcutta, Presidency College
with hon. in Physics in the year 1990
marks obtained 70.5 %.

Present position: Associate Professor at the Department of Physics, University of Calcutta; since June 2009.

Previous permanent positions: Reader at the Department of Physics, University of Calcutta; from June 2006 - June 2009.

Faculty of Physics at the level of Fellow E at Harish Chandra Research Institute, Allahabad, India (May 2005 - June 2006).

Post-doctoral research experience:

1. September 1999 - January 2002 at Harish Chandra Research Institute, Allahabad, India.

2. February 2002 - October 2003 at Helsinki Institute of Physics, University of Helsinki, Helsinki, Finland.

3. November 2003 - January 2005, at INFN, Sezione di Roma, Department of Physics, University of Rome La Sapienza, Rome, Italy.

Research Interests :

High energy physics phenomenology in general. Particularly interested in electro-weak physics beyond the Standard Model, phenomenology of supersymmetric models, models of TeV scale gravity, Neutrino physics in the context atmospheric and longbase line experiments, physics of ultra-high energy cosmic rays.

Awards/Fellowships

- National scholarship on the basis of Madhyamik examination 1985.
- National scholarship on the basis of Higher Secondary examination 1987.
- National scholarship on the basis of B. Sc examination 1990.
- Qualified in joint CSIR-UGC NET examination in December 1992 and awarded a UGC junior research fellowship for working towards the Ph. D Degree.
- Post-doctoral fellowship by Harish Chandra Research Institute from August 1999 to January 2002.
- Postdoctoral fellowship by Academy of Finland to work as a post-doctoral fellow at Helsinki Institute of Physics, University of Helsinki, Finland, (offer was for a period of 3 yrs) from February 2002.
- Postdoctoral fellowship by Istituto Nazionale di Fisica Nucleare (INFN), Italy, to work as a post doctoral fellow at the Università La Sapienza Rome from Fall 2003.

Computer Skill

- Extensive knowledge of programming in FORTRAN.
- Extensive knowledge of algebraic manipulating languages like FORM, MATHEMATICA.
- Extensive knowledge in typesetting language LaTeX.
- Good working knowledge in different UNIX platforms, LINUX, WINDOWS.

Teaching Experience

• Post-graduate courses:

Basic courses : (1) Mathematical Methods (2) Classical Mechanics (3) Classical Electrodynamics (4) Quantum Mechanics I and II (5) Atomic -Molecular and Nuclear Physics (all are of one-semester duration)

Advanced courses : (1) Quantum Field Theory (2) Particle Physics (3) Cosmology (all are of one-semester duration)

CBCS (Post graduate level): (1) Introduction to Cosmology

• Under-graduate courses :

1. Electrostatics and Electromagnetism (level of Griffith's book)

• Pre-Ph. D courses:

Taught at SERC School on Theoretical High Energy Physics at following occasions :

1. Particle Physics and Standard Model

Harish-Chandra Research Institute, 2005,

Khalsa College, Delhi University, 2008; IIT-Chennai 2009,

Hyderabad Central University 2018

2. Group Theory for Particle Physics; Tezpur University 2013

3. Beyond the Standard Model Physics at the Colliders (jointly with Sreerup Raychaudhuri); Center for Theoretical Physics, Jamia Millia University, New Delhi, 2011

Experience in training research students

Number of students who have been already awarded with Ph. D : Three (3)

1. Kirtiman Ghosh (presently faculty at IoP, Bhubaneswar)

2. Avirup Shaw (presently post doctoral fellow at PRL, Ahmedabad)

3. Tapoja Jha (presently post-doctoral fellow at IoP Bhubaneswar)

Number of students who has submitted the thesis : One (1)

1. Nabanita Ganguly (presently post doctoral fellow at TIFR, Mumbai)

Number of students presently enrolled : Two (2)

Research Projects

1. Principal Investigator of CSIR sponsored research project '*Search for new physics at TeV scale in the era of LHC*'; May, 2007 - March 2011.

2. Co-investigator (with Prof. A. Kundu, Dept. of Physics, University of Calcutta) of DAE-BRNS research project '*Particle physics beyond the Standard Model : Preparing for upcoming colliders*'; 2007 - 2010.

3. Principal Investigator DAE-BRNS sponsored research project '*Glimpsing New Physics through the Large Hadron Collider*'; November, 2013 - October 2016.

4. Principal Investigator DST-SERB sponsored research project '*At the doorsteps of new physics: Beyond the Standard Model through Dark Matter, Neutrino mass, and Extra Dimensions*'; December 2016 - .

Invited Talks/Seminars 19. 'Phenomenology of UED with BLKT' at Theory seminar, UNiversity of Rome INFN Rome 1, June 2012.

18. 'Phenomenology of UED with BLKT' at Theory seminar, Helsinki Institute of Physics, Helsinki, May 2012.

17. 'Phenomenology of UED with BLKT' at Theory seminar, Indian Association for Cultivation of Science, Kolkata, April 2012.

16. 'Extra Dimensions : Flat and Warped' at LHC meeting, Indian Association for Cultivation of Science, Kolkata, March 2011.

15. 'Beyond the Standard Model' ; at LHC meeting, Visva Bharati, Santiniketan, January 2011.

14. 'Finding Supersymmetry on ICECUBE', at HEPCOS, Center for Theoretical Physics, Jamia Millia University, New Delhi, March 2008.

13. 'Are we living in a space time with more than $1 + 3$ dimensions? ' ; at 'Physics of warped extra dimensions' Indian Institute of Technology, Kharagpur, February 2008.

12. 'Graviscalar Phenomenology' ; at WIN-07, Saha Institute of Nuclear Physics, Kolkata, January, 2007.

11. 'Phenomenology of graviscalars in extra dimensional models'; Fireball workshop at Harish Chandra Research Institute, Allahabad, June 2005.

10. 'Footprints of supersymmetry from ultra high energy cosmic rays'; Indian Association for Cultivation of Science, Kolkata, December 2004.

9. 'Footprints of supersymmetry from ultra high energy cosmic rays', DESY Theory Workshop, DESY, Hamburg, Germany, October 2004..

8. 'SUSY search via gauge boson fusion' at Argonne National Laboratory, Theory Seminar, Argonne, Chicago, USA, June 2003.

7. 'Slepton search via gauge boson fusion' at University of Jyvaskyla, Jyvaskyla, Finland, October 2002.

6. 'SUSY search via gauge boson fusion' at University of Vienna, Vienna, Austria, October 2002.

5. 'SUSY search via gauge boson fusion' at University of Rome, La-Sapienza , Rome, Italy, October 2002.

4. 'Physics possibilities with the Indian ν Detector' at WHEPP-7, Allahabad, India, January 2002.

3. 'SUSY search via gauge boson fusion ' at WHEPP-7, Allahabad, India, January 2002.
2. 'Some non-standard effects at a neutrino factory' at Helsinki Institute of Physics' Helsinki, Finland, June 2001.
1. 'Invisibly decaying Higgs : Mass Bounds and Search prospects' at Theoretical Physics Today: Trends & Perspectives' held at Indian Association for Cultivation of Science, 22 - 24 April, 1998.

Contributed talks to conferences/Other Seminars

13. 'Footprints of supersymmetry from ultra high energy cosmic rays', Department of Physics, University of Rome La Sapienza, November 2004..
12. 'Invisible higgs boson in large extra dimensions' at CPVNSM meeting at CERN, Geneva, Switzerland; May 2004.
11. 'A new avenue for supersymmetry search at the Large Hadron Collider CERN' High-energy Physics seminar, Dept. of Physics, Univ. of Calcutta, Kolkata, India, July 2003; Harish-Chandra Research Institute, Allahabad, India , July 2003; Theory seminar, Indian Institute of Technology, Kanpur, India, July 2003; Theory seminar, Saha Institute of Nuclear Physics, Kolkata, India, July 2003; Indian Association for Cultivation of Science, Kolkata, India, August 2003.
10. 'Slepton search via gauge boson fusion' at SUSY 2003 Conference, Tucson, Arizona, USA, June 2003.
9. 'Radion Hunting in e^+e^- collision' at 4th ECFA-DESY Linear Collider, Workshop, NIKHEF, Amsterdam, Netherlands, April 2003.
8. 'Slepton search via gauge boson fusion' at NORDIC LHC Workshop, Uppsala, Sweden, November 2002.
7. 'SUSY search via gauge boson fusion' at NORDIC LHC Workshop, Helsinki, Finland, May 2002.
6. 'Search for light Radions of Randall-Sundrum Model at High Energy Hadron Colliders' at Mehta Research Institute, Allahabad, August 2000.
5. 'Search for light Radions of Randall-Sundrum Model at High Energy Hadron Colliders' at Tata Institute of Fundamental Research, Mumbai, July 2000.
4. 'Search for Higgs Bosons in Standard and Non-Standard Models' at Mehta Research Institute, Allahabad, September 1999.
3. 'Search for Higgs Bosons in Standard Model' at Topical Symposium on Particle physics, held at Department of Physics, University of Calcutta, December, 1998.
2. 'Next to Minimal Higgs: Mass Bounds and Search Prospects at LHC.' at ICTP -

BCSPIN Summer School on High Energy Physics and Cosmology, held at Kathmandu, Nepal, May 1997.

1. 'Singlet Higgs Boson Signals at Hadron Colliders' at XI DAE Symposium in High Energy Physics held at Visva Bharati University, Santiniketan, India, December 1994.

Conferences/Summer Schools attended :

1. CP violation and Non-standard higgs' CERN, Geneva, Switzerland; May 2004 (delivered a talk)
2. SUSY 2003, University of Arizona, Tucson, Arizona, USA; June 2003 (delivered a talk).
3. 4th ECFA-DESY Linear Collider Workshop, NIKHEF, Amsterdam, Holland; April 2003 (delivered a talk).
4. NORDIC LHC Workshop held at Uppsala University, Uppsala, Sweden (delivered a talk).
5. Conference on Neutrino and Astroparticle Physics, ICTP, Trieste, Italy; September 2002.
6. NORDIC LHC Workshop held at Helsinki Institute of Physics, Helsinki, Finland (delivered a talk).
7. VII Workshop on High Energy Physics Phenomenology held at Harish-Chandra Research Institute, Allahabad, India; January 2002 (delivered 2 talks).
8. VI Workshop on High Energy Physics Phenomenology held at the Institute of Mathematical Sciences, Chennai, India; January 2000.
9. 13th International Conference on Hadron Collider Physics held at Tata Institute of Fundamental Research, Mumbai, India; January 1999.
10. NATO Advanced Study Institute on 'Gauge and Mass Hierarchies' held at Cargèse, France, August, 1998.
11. Summer School on High Energy Physics and Cosmology at ICTP, Trieste July 1998.
12. V Workshop on High Energy Physics Phenomenology held at Inter University Centre for Astronomy and Astrophysics, Pune, India, January 1998.
13. Seminar on Supersymmetry and Grand Unification held at Tata Institute of Fundamental Research, Mumbai, India, January 1998.
14. LXVIII Session of NATO Advanced Study Institute on 'Probing the Standard Model of Particle Interactions', held at Les Houches, France, August - September 1997.
15. ICTP - BCSPIN Summer School on High Energy Physics and Cosmology, held at Kathmandu, Nepal, May 1997.

16. Workshop on FORTRAN 90 and its Application to Physics and Chemistry, held at Satyendra Nath Bose National Centre for Basic Sciences, Calcutta, India, November 1996.
17. Workshop on Computational and High Energy Physics held at SGTB Khalsa College, Delhi University, Delhi, India, September, 1996.
18. XI SERC School in Theoretical High Energy Physics held at Panjab University, Chandigarh, India, April 1996.
19. IV Workshop on High Energy Physics Phenomenology held at Satyendra Nath Bose National Centre for Basic Sciences, Calcutta, India, January 1996.
20. I SERC School in Experimental High Energy Physics held at the Tata Institute of Fundamental Research, Mumbai, India, January 1995.
21. XI DAE Symposium in High Energy Physics held at Visva Bharati University, Santiniketan, India, December 1994.

LIST OF PUBLICATIONS

Anindya Datta

36. Deciphering Universal Extra Dimension from the top quark signals at the CERN LHC.

with *Debajyoti Choudhury and Kirtiman Ghosh.*

Jour. of High Energy Phy. **1008:057**, 2010.

(hep-ph/0911.4064)

35. Exploring the Universal Extra Dimension at the LHC

with *Gautam Bhattacharyya, Swarup Kumar Majee, Amitava Raychaudhuri.*

Nucl. Phys. **B821**: 48, 2009

(hep-ph/0904.0937)

34. Probing two Universal Extra Dimensions at International Linear Collider

with *Kirtiman Ghosh.*

Phys. Lett **B665** 369, 2008

(hep-ph/0821.2162)

33. Phenomenology of spinless adjoints in two Universal Extra Dimensions

with *Kirtiman Ghosh.*

Nucl. Phys. **B800** 109, 2008

(hep-ph/0801.0943)

32. The neutrino mass scale and the mixing angle θ_{13} for quasi-degenerate Majorana neutrinos

with *Rathin Adhikari, Biswarup Mukhopadhyaya.*

Phys. Rev. **D76** 073003, 2007.

(hep-ph/0703318)

31. Power law blitzkrieg in universal extra dimension scenarios

with *Gautam Bhattacharyya, Swarup Kumar Majee, Amitava Raychaudhuri.*

Nucl. Phys. **B760**: 117, 2007.

(hep-ph/0608208)

30. Identifying the contributions of Universal Extra Dimensions in the higgs sector at linear e^+e^- colliders

with *Santosh K. Rai.*

Int. J. of Mod. Phys. **23**: 519, 2008.

(hep-ph/0509277)

29. Detecting matter effects in long baseline experiments

with *Debajyoti Choudhury.*

Jour. of High Energy Phy. **0058:007**, 2005.

(hep-ph/0410266)

28. UHE neutralinos signatures: selectron/squark resonances in ν telescopes, and sneutrino bursts in the Universe

with *Daniele Fargion, Barbara Mele.*

Journal of High Energy Physics **0509:007**, 2005.

(hep-ph/0410176)

27. Invisible Higgs in theories of large extra dimensions

with *Katri Huitu, Jari Laamanen, Biswarup Mukhopadhyaya.*

Phys. Rev. **D70**: 075003, 2004.

(hep-ph/0404056)

26. Atmospheric neutrinos as a probe of CPT and Lorentz violation

with *Raj Gandhi, Poonam Mehta, S Uma Sankar.*

Phys. Lett. **B597**: 356, 2004.

(hep-ph/0312027)

25. Single sneutrino production at hadron colliders

with *Masud Chaichian, Katri Huitu, Sourov Roy, Zeng-hui Yu.*

Phys. Lett. **B594**: 355, 2004.

(hep-ph/0311327)

24. Violation of angular momentum selection rules in Quantum Gravity

with *Emidio Gabrielli, Barbara Mele.*

Phys. Lett. **B579**: 189, 2004.

(hep-ph/0309232)

23. Hunting radions at linear colliders

with *Katri Huitu.*

Phys. Lett. **B578**: 376, 2004.

(hep-ph/0306241)

22. Slepton production from gauge boson fusion

with *Debajyoti Choudhury, Katri Huitu, Partha Konar,*

Stefano Moretti, Biswarup Mukhopadhyaya.

Phys. Rev. **D68**: 075007, 2003.

(hep-ph/0304192)

21. Large extra dimension effects in Higgs boson production at linear colliders and Higgs factories

with *Emidio Gabrielli, Barbara Mele.*

Jour. of High Energy Phy. **0310:003**, 2003.

(hep-ph/0303259)

20. ZZH coupling : A probe to the origin of EWSB ?

with *Debajyoti Choudhury, Katri Huitu.*

Nucl. Phys. **B673**: 385, 2003.

(hep-ph/0302141)

19. Characteristic slepton signal in anomaly mediated SUSY breaking models via gauge boson fusion at the LHC

with *Katri Huitu*.

Phys. Rev. D **67**: 115006, 2003.

(hep-ph/0211319)

18. Virtual graviton exchanges at the Z-pole in large extra dimensions

with *Emidio Gabrielli, Barbara Mele*.

Phys. Lett. B **552**: 237, 2003.

(hep-ph/0210318)

17. Radiative production of invisible charginos in photon photon collision.

with *Debajyoti Choudhury, Biswarup Mukhopadhyaya, Subhendu Rakshit*.

Jour. of High Energy Phy. **0301:069**, 2003.

(hep-ph/0205103)

16. Invisible Charginos and neutralinos from gauge boson fusion: A way to explore anomaly mediation ?

with *Partha Konar, Biswarup Mukhopadhyaya*.

Phys. Rev. Lett. **88**: 181802, 2002.

(hep-ph/0111012)

15. Radion and Higgs mixing at the LHC

with *Masud Chaichian, Katri Huitu, Zeng-hui Yu*.

Phys. Lett. B **524**: 161, 2002.

(hep-ph/0110035)

14. Signals of neutralinos and charginos from gauge boson fusion at the Large Hadron Collider

with *Partha Konar, Biswarup Mukhopadhyaya*.

Phys. Rev. D **65**: 055008, 2002.

(hep-ph/0109071)

13. Effects of lepton number violating interactions on $t\bar{t}$ production at NLC

Phys. Rev. D **65**: 054019, 2002.

(hep-ph/0108150)

12. Heavy quark production via supersymmetric interaction at a neutrino factory

with *Debrupa Chakraverty, Biswarup Mukhopadhyaya*.

Phys. Lett. B **508**: 74, 2001; erratum-*ibid.* **B519** :285, 2001.

(hep-ph/0103122)

11. A nonsupersymmetric resolution of the anomalous muon magnetic moment

with *Debrupa Chakraverty, Debajyoti Choudhury*.

Phys. Lett. B **506** : 103, 2001.

(hep-ph/0102180)

- 10. Signals of R-parity violating supersymmetry in neutrino scattering at muon storage rings**
with *Raj Gandhi, Poonam Mehta, Biswarup Mukhopadhyaya*.
Phys. Rev. D **64**: 015011, 2001
(hep-ph/0011375)
- 9. Probing the violation of equivalence principle at a muon storage ring via neutrino oscillation**
Phys. Lett. B **504**: 247, 2001
(hep-ph/0011240)
- 8. New Higgs signals from vector boson fusion in R-parity violating supersymmetry**
with *Partha Konar, Biswarup Mukhopadhyaya*.
Phys. Rev. D **63** : 095009, 2001.
(hep-ph/0009112)
- 7. LHC Signatures of the Minimal SUGRA Model with Large Soft Scalar Mass**
with *Amitava Datta, Asesh K. Datta, Utpal Chattopadhyaya, Durga Prasad Roy*.
Phys. Lett. B **493**: 127, 2000.
(hep-ph/0008228)
- 6. Signatures of the Light Down-Squark Scenario at the Upgraded Tevatron**
with *Amitava Datta, Shyamapada Maity*.
J. Phys. G **27**: 1547, 2001.
(hep-ph/0007230)
- 5. Prospects of Squark & Slepton searches at a Gamma Gamma Collider**
with *Debajyoti Choudhury*.
Nucl. Phys. B **592**: 35, 2000.
(hep-ph/0005082)
- 4. Production of Light Stabilised Radions at High Energy Hadron Colliders**
with *Uma Mahanta*.
Phys Lett. **B483**: 196, 2000.
(hep-ph/0002183)
- 3. Mass Bounds for Triplet Scalars of the Left-Right Model and their Detection at Hadron Colliders**
with *Amitava Raychaudhuri*.
Physical Review D **62**: 055002, 2000.
(hep-ph/9905421)

2. Next to Minimal Higgs: Mass Bounds and Search Prospects at the LHC

with *Amitava Raychaudhuri*.

Physical Review D **57**: 2940, 1998.

(hep-ph/9708444)

1. Singlet Higgs Boson Signals at Hadron Colliders

with *Amitava Raychaudhuri, Sreerup Raychaudhuri, Surajit Chakrabarti*.

Z. Phys. C. **72**: 459, 1996.

(hep-ph/9510432)

Conference Proceedings etc.

- *S.Sajjad Athar et al. (INO Collaboration)*: India-based Neutrino Observatory: Project Report. Volume I. INO-2006-01, May 2006.
- *V. Arumugam et al. (INO Collaboration)*: India-based Neutrino Observatory: Interim project report. Vol. 1. INO-2005-01, 2005.
- *A. Datta, K. Huitu, J. Laamanen, B. Mukhopadhyaya* : Invisible Higgs in theories of large extra dimensions, Tsukuba 2004, SUSY 2004.
- *K. Ackermann et al* : Extended joint ECFA/DESY study on physics and detector for a linear $e^+ e^-$ collider. Proceedings, Summer Colloquium, Amsterdam, Netherlands, April 4, 2003; DESY-PROC-2004-01, DESY-04-123, DESY-04-123G.
- *A. Datta* : (2002) Supersymmetry search via gauge boson fusion, For the proceedings of WHEPP-7, Allahabad; Pramana J. of Phys. **60**.
- *G. Bhattacharya, A. Datta (1998)* : $W\gamma$ Luminosity at the Large Hadron Collider, For the proceedings, WHEPP 5 (Collider Physics Gr. Report; Pramana, J. of Phys. **51**

Submitted for publication and/or Unpublished

4. Exploring two Universal Extra Dimensions at the CERN LHC

with *Debajyoti Choudhury, Dilip Kumar Ghosh and Kirtiman Ghosh*.

(hep-ph/10109.1400) (submitted for publication)

3. Mutual consistency of the MINOS and MiniBooNE Antineutrino Results and Possible CPT Violation.

with *Debajyoti Choudhury and Anirban Kundu*.

(hep-ph/1007.2923) (unpublished)

2. What does the ν_μ oscillate into ?

with *Debajyoti Choudhury*.

(hep-ph/0606100), (unpublished).

1. Higgs Signal in $3b$ Final State at Fermilab Tevatron

with *Debajyoti Choudhury, Sreerup Raychaudhuri*.

(hep-ph/9809552) (unpublished)