




## Faculty Details proforma for DU Web-site

| Title   | Dr.       | First Name  | Md. | Last Name | Naimuddin   | Photograph  |
|---|-----------|---|-----|-----------|-------------|---|
| Designation   |           | <b>Assistant Professor</b>  |     |           |             |  |
| Address   |           | <b>Room No. 162,<br/>Multistoried building,<br/>Department of Physics &amp; Astrophysics,<br/>University of Delhi,<br/>Delhi – 110007</b> |     |           |             |   |
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| Email   |           | nayeemATfnalDOTgov,<br>nayeemsworldATgmailDOTcom<br><b>nayeemATphysicsDOTduDOTacDOTin</b>   |     |           |             |   |
| Web-Page  |           | <b>http://www-clued0.fnal.gov/~nayeem/mypage.html</b>   |     |           |             |   |
| <b>Educational Qualifications</b>   |           |   |     |           |             |   |
| Degree  |           | Institution   |     |           | Year        |   |
| <b>Ph.D.</b>  |           | <b>Delhi University</b>   |     |           | <b>2006</b> |   |
| <b>M.Sc. (Physics)</b>  |           | <b>Delhi University</b>   |     |           | <b>2002</b> |   |
| <b>Career Profile</b>   |           |   |     |           |             |   |
| <p><b>Assistant Professor, University of Delhi, Delhi, India (2009-till date)</b><br/> <b>Adjunct Professor, Northern Illinois University, DeKalb, IL, USA (2010 – 2016)</b><br/> <b>Research Associate, Fermi National Accelerator Lab, Batavia, IL, USA (2006-2009)</b><br/> <b>Research Assistant, Fermi National Accelerator Lab, Batavia, IL, USA (2004-2006)</b><br/> <b>Junior Research Fellow, CSIR, New Delhi, India (2003-2004)</b></p>   |           |   |     |           |             |   |
| <b>Administrative Assignments</b>   |           |   |     |           |             |   |
| <p><b>Resident Tutor, Jubilee Hall, University of Delhi, Delhi, India (2009 – till date)</b><br/> <b>Director, Xth SERC School in Experimental High Energy Physics, 2016</b><br/> <b>Member, Department of Science and Technology Program Committee for conducting SERC Schools in High energy physics.</b><br/> <b>Convener, Model Independent search group, DZERO experiment, Fermilab (2007-2012)</b><br/> <b>Coordinator, Global Monitoring System, DZERO experiment, Fermilab (2005-2007)</b><br/> <b>Member of the various Departmental Committees.</b></p> |           |   |     |           |             |   |
| <b>Areas of Interest / Specialization</b>   |           |   |     |           |             |   |
| <p><b>High Energy Particle Physics, Nuclear Physics, Medical physics</b><br/> <b>Higgs Searches, Searches for New Physics beyond Standard Model, B physics, Neutrino physics.</b><br/> <b>Application of HEP elements in medical physics for cancer therapy.</b><br/> <b>Software and algorithm development for HEP, Detector development</b><br/> <b>Presently collaborating on CMS experiment at LHC-CERN, INO experiment, India and DZERO experiment at Fermilab, USA</b></p>  |           |   |     |           |             |   |
| <b>Subjects Taught</b>  |           |   |     |           |             |   |

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| <p><b>Classical Mechanics (M. Sc.)</b></p> <p><b>Nuclear and Particle Physics Theory (M.Sc.)</b></p> <p><b>Nuclear and Computational Sciences (M.Tech.)</b></p> <p><b>Nuclear Physics Practicals (M.Sc.)</b></p> <p><b>Computational physics (M.Sc.)</b></p>  |
| <p><b>Research Guidance</b></p> <p>Supervising three Ph.D. Students, one Research Associate (RA) &amp; two Project Fellows.<br/>Two Ph.D. awarded.</p> <p>Two students working on CMS experiment at LHC, CERN.<br/>Another student working on detector and physics aspects of INO-ICAL detector.</p> <p>One Research Associate working on the detector aspects of the INO-ICAL detector.</p> <p>One Project Fellow is working on the development of Proton Computed Tomography for cancer therapy and generic detector R&amp;D.</p>   |
| <p><b>Publications Profile</b></p> <p>Complete list is provided separately. Only main publications are provided here:</p> <ol style="list-style-type: none"> <li><b>1. Development of a proton Computed Tomography Detector System</b>, Md. Naimuddin, G. Coutrakon, G. Blazey, S. Boi, A. Dyshkant, B. Erdelyi, D. Hedin, E. Johnson, J. Krider, V. Rukalin, S.A. Uzunyan, V. Zutshi, R. Fordt, G. Sellberg, J.E. Rauch, M. Roman, P. Rubinov and P. Wilson, <b>JINST 11 C02012 (2016)</b>.</li> <li><b>2. The sensitivity of the ICAL detector at India-based Neutrino Observatory to neutrino oscillation parameters</b>, Daljeet Kaur, Md. Naimuddin and Sanjeev Kumar, <b>Eur. Phys. J. C 75, 156 (2015)</b>.</li> <li><b>3. Precise determination of the mass of the Higgs boson and tests of compatibility of its couplings with the standard model predictions using proton collisions at 7 and 8 TeV</b>, S. Chatchyan, ....., Md. Naimuddin, <i>et al.</i>, <b>Eur. Phys. J. C 75, 212 (2015)</b></li> <li><b>4. Characterization of 3 mm glass electrodes and development of RPC detectors for INO-ICAL experiment</b>, Daljeet Kaur, Ashok Kumar, Ankit Gaur, Purnendu Kumar, Md. Hasbuddin, Swati Mishra, Praveen Kumar and Md. Naimuddin, <b>Nucl. Instr. Meth. A 774 (2015) 74-81</b>.</li> <li><b>5. Hadron energy resolution as a function of iron plate thickness at ICAL</b>, Moon Moon Devi, Anushree Ghosh, Daljeet Kaur, Lakshmi S. Mohan, Sandhya Choubey, Amol Dighe, D. Indumathi, M. V. N. Murthy and Md. Naimuddin, <b>JINST 9 T09003 (2014)</b>.</li> <li><b>6. Characterisation of glass electrodes and RPC detectors for INO-ICAL experiment</b>, Md. Naimuddin, D. Kaur, P. Kumar, A. Gaur, P. Kumar, Md. Hasbuddin, S. Mishra and A.</li> </ol> |

Kumar, **JINST 9 C10039 (2014).**

7. **Study of RPC bakelite electrodes and detector performance for INO-ICAL**, A. Kumar, A. Guar, Md. Hasbuddin, P. Kumar, D. Kaur, S. Mishra and Md. Naimuddin, **JINST 9 C10042 (2014).**
8. **Hadron energy response of the Iron Calorimeter detector at the India-based Neutrino Observatory**, M. M. Devi, A. Ghosh, D. Kaur, S. M. Lakshmi, S. Choubey, A. Dighe, D. Indumathi, S. Kumar, M. V. N. Murthy and Md. Naimuddin, **JINST 8, 11003 (2013).**
9. **Measurement of the sum of WW and WZ production with W+dijet events in pp collisions at sqrt(7) TeV**, S. Chatchyan, ....., Md. Naimuddin, *et al.*, **Eur. Phys. J. C 73, 2283 (2013).**
10. **Search for the standard model Higgs boson in  $ZH \rightarrow l^+l^-bb$  production with the D0 detector in  $9.7 \text{ fb}^{-1}$  of pp collisions at  $\sqrt{s}=1.96 \text{ TeV}$** , V. Abazov, ....., M. Naimuddin, *et al.*, **Phys. Rev. Lett. 109, 121803 (2012).**
11. **Observation of a new boson at a mass of 125 GeV with the CMS experiment at the LHC**, S. Chatrchyan, ....., Md. Naimuddin, *et al.*, **Phys. Lett. B 716 (2012) 30-61.**
12. **Model independent search for new phenomena in ppbar collisions at sqrt(s) = 1.96 TeV**, V. Abazov, ....., M. Naimuddin, *et al.*, **Phys. Rev. D, 85, 092015, (2012).**
13. **Search for  $ZH \rightarrow l^+l^-bb$  Production in  $4.2 \text{ fb}^{-1}$  of pp Collisions at  $\sqrt{s} = 1.96 \text{ TeV}$** , V. Abazov, ....., M. Naimuddin, *et al.*, **Phys.Rev.Lett., 105, 251801, (2010).**
14. **Evidence for an anomalous like-sign dimuon charge asymmetry**, V. Abazov, M. Naimuddin, et. Al., **Phys. Rev. Lett. 105, (2010) 081801**
15. **Evidence for an anomalous like-sign dimuon charge asymmetry**, V. Abazov, M. Naimuddin, et. Al., **Phys. Rev. D, 82, (2010) 032001**
16. **A Combined Search for the Standard Model Higgs Boson at  $\sqrt{s} = 1.96 \text{ TeV}$** , V. Abazov, ....., M. Naimuddin, *et al.*, **Physics Letters B 663, 26, (2008).**
17. **Design and Implementation of the New D0 Level-1 Calorimeter Trigger**, M. Abolins, ....., M. Naimuddin, et al. **Nucl. Instrum. and Methods A 584/1, 75(2007).**
18. **The Upgraded D0 Detector**, V. Abazov, ....., M. Naimuddin, *et al.*, **Nucl. Instr. and Methods A 565, 463 (2006).**
19. **Measurement of Bd mixing using opposite-side flavor tagging**, V. Abazov, ....., M. Naimuddin, *et al.*, **Phys. Rev. D, 74, 112002 (2006) .**
20. **Direct Limits on the Bs0 Oscillation Frequency**, V. Abazov, ....., M. Naimuddin, *et al.*, **Phys.Rev.Lett. 97 021802 (2006).**
21. **Matter Antimatter Oscillations**, Md. Naimuddin, A book published by **LAP Lambert Academic Publishing house, Germany, ISBN: 9783838333250, 2010.**

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| Conference Organization/ Presentations (in the last three years)  |
| <ol style="list-style-type: none"> <li>1. <b>Development and Characterisation of Large size RPC detectors for INO-ICAL experiment</b> – Presented at International Conference in High Energy Physics (ICHEP) 2016, August 03 – 10, 2016, University of Chicago, Chicago, USA.</li> <li>2. <b>Timing and Charge measurements of INO-ICAL RPC Detectors</b> – Presented at Workshop on Resistive Plate Chamber (RPC) Detectors, February 22 – 26, 2016, Ghent University, Ghent, Belgium.</li> <li>3. <b>Development of Large Area RPC Detector for INO-ICAL Experiment</b> – Presented at IEEE-NSC Conference, Oct. 31 – Nov. 07, 2015, San Diego, USA.</li> <li>4. <b>Status of INO Experiment</b> – Invited talk presented at NNN15, Oct. 28 – 31, 2015, SUNY, Stony Brook, NY, USA.</li> <li>5. <b>Development of a High Rate Proton Computed Tomography Detector System</b> – Presented at the International Workshop on Radiation Imaging Detectors (iWoRid), June 28 – July 02, 2015, DESY, Hamburg, Germany</li> <li>6. <b>Characterization of the Glass electrodes and RPC's for the INO-ICAL experiment</b> – Presented at the XII Resistive Plate Chambers Detectors and Related Technology (RPC2014) workshop, February 23-28, 2014, Tsinghua University, Beijing, China.</li> <li>7. <b>Search for New Physics at LHC</b> – Invited talk at “What Next at LHC” conference, January 06-08, 2014, Tata Institute of Fundamental Research, Mumbai, India.</li> <li>8. <b>Status of Higgs boson and Beyond at Colliders</b> – Summary talk at the XII workshop on High Energy Physics and Phenomenology (WHEPP), December 12-21, 2013, Puri, India</li> <li>9. <b>Status of India-based Neutrino Observatory</b> – Invited talk at the Cosmology and Particle Astrophysics (CosPA) conference, November 2012, NTU, Taipei, Taiwan.</li> <li>10. <b>Proton Computed Tomography for Cancer Therapy</b> – Invited talk at National Symposium on Particles, Detectors and Instrumentation, March 2012, TIFR, Mumbai, India.</li> </ol> |
| Research Projects (Major Grants/Research Collaboration)   |
| <p><b>Search for the New Particles at the CMS experiment at LHC, DST, India</b><br/> <b>R&amp;D Efforts by University Groups for INO-ICAL project, DST, India</b><br/> <b>Development of Gaseous Electron Multiplier (GEM) detectors and its applications in basic science Medical Physics, INSA, India</b><br/> <b>Development of proton Computed Tomography, UGC, India – Completed.</b><br/> <b>Simulating the elements of proton computed Tomography for cancer therapy, NIU, USA - Completed</b><br/> <b>R&amp;D activity for INO Resistive Plate Chamber detector (RPC) detector, DST, India – Completed.</b><br/> <b>Search for New Phenomena at the CMS experiment at LHC at CERN, DST, India – Completed.</b></p>  |

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| Awards and Distinctions  |
| <p><b>Awarded CERN Scientific Associateship, 2016</b><br/> <b>Awarded INSA medal for young scientists, 2011.</b><br/> <b>Adjunct Professor, Northern Illinois University, Dekalb, IL, USA</b><br/> <b>Received “European Union Award for young researchers” twice to attend “Moriond QCD conference in 2006 and 2008” at La Thuile, Italy.</b><br/> <b>Received Department of Particle and Fields, USA travel award to attend APS conference in 2005 at Tempa, Florida, USA.</b><br/> <b>Visiting Fellow, Fermilab Particle Physics Division from 2004-2006.</b></p> |
| Association With Professional Bodies   |
| <p><b>Member, American Physical Society (2005-2007).</b></p>   |
| Other Activities   |
| <p>Involved in science and education outreach programs for general public. Writes in newspapers and participates in visual media panel discussions. Active in improving the teaching methodology in schools and colleges.</p>  |