# MOON MOON DEVI

## PERSONAL INFORMATION


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| *Date of Birth* | 20 February 1987 |
| *Nationality* | Indian |
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| *Permanent address* | College Road, Nathpara<br>P·O· Khalilpur<br>Dhubri, Assam 783325, INDIA |
| *Address for Correspondence* | Department of Physics<br>Room 263, Tezpur University<br>Napaam, Sonitpur<br>Assam 784028, INDIA |
| *Languages known* | Assamese, English, Hindi, Bengali |


## CURRENT POSITION

*2017–Present* Department of Physics, Tezpur University, Assam 784028, INDIA

*Assistant Professor*

Research Interest:

- UHECR and Extensive Air Showers
- Neutrino Physics
- Dark Matter Experimentation

## EXPERIENCE

*2014–2017* Department of Particle Physics & Astrophysics, Weizmann Institute of Science, Rehovot, Israel

*Dean-of-faculty Postdoctoral Fellow*

PI & Advisor: Dr. Ranny Budnik.
Research Work:

- Simulation study of the charged particles of Cosmic Ray Air Showers, with an emphasis on the muons, and the development of a future type of surface array detector.
- Designing and building of an experiment, DIREXENO, to measure anisotropies and other characteristics of the scintillation in Liquid Xenon.

## EDUCATION

*2009–2014* India–based Neutrino Observatory, Tata Institute of Fundamental Research, Mumbai, India

*Ph.D in Experimental High Energy Physics*

Advisor: Prof. Amol Dighe, Co–advisor: Dr. B. Satyanarayana.
Research Work:

- Simulation study of the hadron and neutrino response of the Iron Calorimeter (ICAL) detector at INO.
- Study of the physics potentials of the ICAL detector using muon and hadrons.
- Development and performance study of glass Multi-gap RPC detectors.

*2007-2009* Gauhati University, Guwahati, Assam, India

*Master of Science Physics*

Grade: 1$^{st}$ Class **(1$^{st}$ Rank)**.
Specialization: High Energy Physics, Astronomy & Astrophysics.
Dissertation Work on Observational Astronomy:
Project Supervisor: Prof. M. P. Borah
(Telescope used: 12inch Meade LX200)

- Calculation the plate scale of the pictor 216XT CCD from the imaging of the binary star Mizar.
- To find the temperature of a star from its colour index using SSP3A stellar photometer.

*2004-2007* Gauhati University, Guwahati, Assam, India

*Bachelor of Science*

Grade: 1st Class **( 1st Rank, Best Graduate of Science Stream)**.
Major Subject: Physics.
Minor Subjects: Mathematics, Chemistry, English Literature.

*2004* B.N. College, Dhubri, Assam

*HSSLC*

Grade: 1st Division.
Subjects: Physics, Mathematics, Chemistry, Biology, English, MIL(Assamese).

*2002* B.B.H.S. School, Dhubri, Assam

*HSLC*

Grade: 1st Division with Distinction, **(7th Rank in State, Recipient of Dharam Hinduja Merit Scholarship)**.
Subjects: MIL(Assamese), English, General Science, General Mathematics, Social Studies, Advanced Mathematics.

## PUBLICATIONS

*2017* UHECR primary identification using the lateral profile of muons in EAS
***M.M. Devi***, *R. Budnik, under review, arXiv:1707.09529[astro-ph.IM]*

*2016* Design, Development and Performance Study of Glass Multigap RPC Detectors
***M.M. Devi***, *N.K. Mondal, B. Satyanarayana, R.R. Shinde, Eur. Phys. J. C (2016) 76: 711, arXiv:1509.08586[physics.ins-det]*

*2015* Physics Potential of the ICAL detector at the India–based Neutrino Observatory (INO)
***The ICAL Collaboration***, arXiv:1505.07380 [physics.ins-det].

*2014* Enhancing sensitivity to neutrino parameters at INO combining muon and hadron information
***M.M. Devi***, *T. Thakore, A. Dighe, S.K. Agarwalla, JHEP 1410, 189 (2014) , arXiv:1406.3689 [hep-ph]*

*2014* Hadron energy resolution as a function of iron plate thickness at the ICAL
*S.M. Lakshmi, A. Ghosh,* ***M.M. Devi***, *D. Kaur, S. Choubey, A. Dighe, D. Indumathi, M.V.N Murthy, Md. Naimuddin, JINST 9, T09003 (2014), arXiv:1401.2779[physics.ins-det]*

*2014* Probing CP violation with the first ultra-high energy neutrinos from IceCube
*A. Chatterjee,* ***M.M. Devi***, *M. Ghosh, R. Moharana, S.K. Raut, Phys. Rev. D 90, 073003 (2014), arXiv:1312.6593[hep-ph]*

*2013* Hadron energy response of the Iron Calorimeter detector at the India-based Neutrino Observatory
***M.M. Devi***, *A. Ghosh, S.M. Lakshmi, D. Kaur, S. Choubey, A. Dighe, D. Indumathi, S. Kumar, M.V.N Murthy, Md. Naimuddin, JINST 8, P11003 (2013), arXiv:1304.5115 [physics.ins-det]*

*2014* The India-based Neutrino Observatory
***M.M. Devi*** *for the INO collaboration, Proceedings of the XVIth International Workshop on Neutrino Factories and Future Neutrino Facilities, PoS(NUFACT 2014)032*

*2014* Enhancing the reach of INO-ICAL using correlated muon and hadron information
***M.M. Devi*** *et al., Proceedings of the XVIth International Workshop on Neutrino Factories and Future Neutrino Facilities, PoS(NUFACT 2014)117*

*2014* Performance of Glass Multi-gap RPC detectors

***M.M. Devi** et al., Proceedings of the XII workshop on Resistive Plate Chambers and Related Detectors, PoS(RPC2014), to be published in JINST*

*2013* Development and characterization of Glass Multi-gap RPC detectors
***M.M. Devi** et al., Proceedings of the International Symp. on Nucl. Phys. (2013)*

*2013* Development and characterization of Glass Multi-gap RPC detectors
***M.M. Devi** et al., Proceedings of the DAE-BRNS National Symposium on Nuclear Instrumentation (2013)*

*2011* A simulation study on the hadronic response of the INO-ICAL detector
***M.M. Devi**, Proceedings of the DAE Symp. on Nucl. Phys., PoS(SNP2011)56.*

## TALKS AND PRESENTATIONS

*October 2017* Direct Detection of Dark matter with LXe: intrinsic backgrounds
Saha Institute of Nuclear Physics, Kolkata

*October 2017* The detection of lateral profile of muons in EAS
*3$^{rd}$ National Symposium on Particles, Detectors and Intrumentation, TIFR, Mumbai*

*July 2017* The lateral profile of muons in EAS
*International Cosmic Ray Conference 2017, Busan, Korea*

*December 2016* Muons from UHECR: enhancing probe for primary identification (Poster)
*Annual Meet, Israel Physics Society, Tel Aviv University, Israel*

*October 2016* UHECR produced muons: enhancing probe for primary identification
*Department of High Energy Physics, Tata Institute of Fundamental Research Mumbai, India*

*October 2016* UHECR produced muons: enhancing probe for primary identification
*Department of Physics, Indian Institute of Technology Guwahati, India*

*September 2016* UHECR produced muons: enhancing probe for primary identification (Poster)
*TEVPA'2016, CERN, Geneva*

*August 2016* UHECR primary identification using the lateral profile of muons in EAS
*European Cosmic Ray Symposium, Turin, Italy*

*Oct 2015* Direct Detection of Dark Matter
*Department of High Energy Physics, Tata Institute of Fundamental Research Mumbai, India*

*Sep 2015* Direct Detection of Dark Matter
*Department of Physics, Tezpur University, India*

*Sep 2015* Direct Detection of Dark Matter
*Department of Physics, Indian Institute of Technology Guwahati, India*

*Aug 2014* India–based Neutrino Observatory: Present status
*The XVIth International Workshop on Neutrino Factories and Future Neutrino Facilities NUFACT2014, University of Glasgow, UK*

*Aug 2014* Enhancing the reach of INO-ICAL using correlated muon and hadron information (Poster Presentation), The XVIth *International Workshop on Neutrino Factories and Future Neutrino Facilities NUFACT2014, University of Glasgow, UK*

*May 2014* Studying neutrino mixing parameters at INO-ICAL
*Journal club talk, Department of Particle Physics and Astrophysics, Weizmann Institute of Science, Rehovot, Israel*

*May 2014* Performance of Glass Multi-gap RPC detectors
*Detector group talk, Department of Particle Physics and Astrophysics, Weizmann Institute of Science, Rehovot, Israel*

*Feb 2014* Performance of Glass Multi-gap RPC detectors (over skype)
*XII workshop on Resistive Plate Chambers and Related Detectors (RPC2014), Tsinghua University, Beijing, China*

*Dec 2013* Development and Characterization of Glass Multi-gap RPC detectors (Poster Presentation)
*International Symposium on Nuclear Physics-2013, Bhabha Atomic Research Center, Mumbai, India*

*Nov 2013* Development and Characterization of Glass Multi-gap RPC detectors (Poster

Presentation)
*DAE-BRNS National Symposium on Nuclear Instrumentation-2013, Bhabha Atomic Research Center, Mumbai, India*

*Feb 2013* The neutrino response of the ICAL detector at INO
*National Conference on Contemporary Issues on High Energy Physics and Cosmology, Gauhati University, Guwahati, India.*

*Jan 2013* Development and Characterization of Glass Multi-gap RPC detectors
*XX DAE-BRNS High Energy Physics Symposium, Visva-Bharati, Santiniketan, India.*

*Jan 2013* The neutrino energy and direction resolutions of the ICAL detector at INO (Poster Presentation)
*XX DAE-BRNS High Energy Physics Symposium, Visva-Bharati, Santiniketan, India.*

*April 2012* The world of the neutrinos
*Colloquium talk, Gauhati University, Guwahati, India*

*Mar 2012* A simulation study of the hadronic response at INO-ICAL (Poster Presentation)
*National Symposium on Particles, Detectors and Instrumentation, Tata Institute of Fundamental Research, Mumbai, India.*

*Mar 2012* The development and characterization of MRPC detectors(Poster Presentation)
**Best Poster Award**
*National Symposium on Particles, Detectors and Instrumentation, Tata Institute of Fundamental Research, Mumbai, India.*

*Dec 2011* The hadronic response of the ICAL detector at INO (Poster Presentation) *DAE symposium on Nuclear Physics, Andhra University, Visakhapatnam, India.*

*July 2011* The hadron energy resolution at INO-ICAL (Oral & Poster Presentations)
*International Neutrino Summer School-2011, University of Geneva, Switzerland.*

*June 2011* The hadron energy resolution of the ICAL detector at INO *VIII SERC School on Experimental High Energy Physics, Variable Energy Cyclotron Centre, Kolkata, India.*

## CONFERENCES, WORKSHOPS AND SCHOOLS

*Oct 2017* National Symposium on Particles, Detectors and Instrumentation, TIFR, Mumbai

*July 2017* International Cosmic Ray Conference 2017, Busan, Korea

*Sep 2016* TEVPA 2016, CERN, Geneva, Switzerland

*Aug 2016* European Cosmic Ray Symposium, Turin, Italy

*Jan – Feb 2016* International School of Trigger and Data Acquisition, Weizmann Institute of Science, Israel

*May – June 2015* Beyond WIMPs – From Theory to Detection, Hagoshrim Kibbutz, Israel

*Jan 2015* Darwin meeting 2015, Weizmann Institute of Science

*Oct 2015* IV International CORSIKA School, Lauterbaud, Germany

*Dec 2013* XIII Workshop on High Energy Physics Phenomenology
*Puri, Odisha, India.*

*Dec 2013* International Symposium on Nuclear Physics
*Bhabha Atomic Research Center, Mumbai, India.*

*Nov 2013* DAE-BRNS National Symposium on Nuclear Instrumentation
*Bhabha Atomic Research Center, Mumbai, India.*

*Feb 2013* National Conference on Contemporary Issues on High Energy Physics and Cosmology
*Gauhati University, Guwahati, India*

*Jan 2013* XX DAE-BRNS High Energy Physics Symposium
*Visva-Bharati, Santiniketan, India.*

*Dec 2012* Frontiers of High Energy Physics IMSc Golden Jubilee Symposium
*The Institute of Mathematical Sciences, Chennai, India.*

*Mar 2012* National Symposium on Particles, Detectors and Instrumentation
*Tata Institute of Fundamental Research, Mumbai, India.*

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| *Dec 2011* | DAE Symposium on Nuclear Physics<br>*Andhra University, Visakhapatnam, India.* |
| *Sep 2011* | Interface of Cosmology And Particle Physics: Neutrinos Beyond the Standard Model<br>*Physical Research Laboratory, Ahmedabad, India.* |
| *Aug 2011* | XXV International Symposium on Lepton Photon Interactions at High Energies<br>*Tata Institute of Fundamental Research, Mumbai, India.* |
| *July 2011* | International Neutrino Summer School<br>*University of Geneva, Switzerland* |
| *June 2011* | VIII SERC School on Experimental High Energy Physics<br>*Variable Energy Cyclotron Centre, Kolkata, India.* |
| *Feb 2011* | NuHorizons IV<br>*Harish-Chandra Research Insitute, Allahabad, India* |
| *Jan 2011* | Workshop on Synergy between High Energy and High Luminosity Frontiers<br>*Tata Institute of Fundamental Research, Mumbai, India.* |
| *Oct - Nov 2010* | XXVI Preparatory SERC School in Theoretical High Energy Physics<br>*Birla Institute of Technology & Science, Pilani - Goa Campus, Zuarinagar, Goa, India.* |

## MENTORSHIP

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| *Aug 2017 – Present* | M.S. Thesis Project titled "Detection of Sterile Neutrinos in the Atmospheric Sector"<br>*Mr. Chandan Sarma, M.Sc. Student, Department of Physics, Tezpur University.* |
| *Oct 2014 – Dec 2015* | M.S. Thesis Project titled "The Simulation and Designing Optimization of the Optical System for a novel liquid Xenon experiment"<br>*Mr. Maor Shutman, M.S Student, Weizmann Institute of Science, Israel [Project advisor: Dr. R. Budnik].* |
| *July 2015* | ISSI Summer Program, Davidson Institute Israel, Project titled "Probing Sterile Neutrinos From The Downward Atmospheric Neutrino Flux on the Earth"<br>*Mr. David Miller, USA; Mr. Matheus Valenca, Brazil; Mr. Steven Jiang, USA.* |
| *May-Jul 2012* | KVPY Summer Project Work titled "Fabrication and Characterization of Multi-gap RPCs"<br>*Mr. Tanmay S. Patankar, 3rd Year Int. B.S-M.S Student, Indian Institute of Science Education and Research, Pune [Project advisor: Dr. B. Satyanarayana].* |
| *Jul-Aug 2011* | Summer Project Work titled "Development and Characterization of MRPC detector for India-based Neutrino Observatory"<br>*Mr. Shankar Nair, Bachelor of Science Engineering Physics, Embry Riddle Aeronautical University, Daytona Beach, Florida- 32114 [Project advisor: Dr. B. Satyanarayana].* |

October 26, 2017