



CONNECTING MINDS
ADVANCING LIGHT

26 April 2018

Dr. Pabitra Nath
Tezpur Univ.
India

CONFIRMATION OF ATTENDANCE

This is to confirm that Dr. Pabitra Nath
Tezpur Univ.
attended

SPIE Photonics Europe 2018
22nd – 26th April 2018

Strasbourg, France

Title of the Paper Presented: Accurate estimation of mercury level
concentration in water using smartphone
Paper Number: 10680-60

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तेजपुर विश्वविद्यालय / TEZPUR UNIVERSITY
(केंद्रीय विश्वविद्यालय / A Central University)
कुल सचिव का कार्यालय / OFFICE OF THE REGISTRAR
तेजपुर-784028 :: असम / TEZPUR-784028 :: ASSAM

कुलाध्यक्ष का सर्वोत्तम विश्वविद्यालय पुरस्कार, 2016, एनआईआरएफ़ भारत रैंकिंग 05 :2016 और नाक द्वारा ए ग्रेड प्राप्त
Visitor's Best University Award, 2016, NIRF India Rankings 2016: 05 and accredited with NAAC 'A' grade

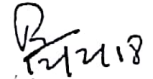
OFFICE ORDER

Dated: 13.02.2018

The University is pleased to accord permission to Dr. Pabitra Nath, Associate Professor, Dept. of Physics to attend the International Conference entitled "Photonics Europe 2018" at Strasbourg, France during 22 – 26 April, 2018 with a financial assistance of Rs. 40,000/- only.

Dr. Nath will apply for leave separately.

Issued with due approval.

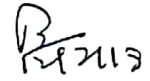

Registrar

Memo no. F.21-6/2012 (GA-I)/(Vol. II)/ 5116-A

Dated: 13.02.2018

Copy for information to:

1. The Dean, School of Sciences.
2. Finance Officer.
3. The Head, Dept. of Physics.
- ✓ 4. Dr. Pabitra Nath, Associate Professor, Dept. of Physics.
5. Hindi Officer, with a request to place the matter in the next meeting of BoM.
6. Secretary to the Vice-Chancellor, for kind information of the Vice-Chancellor.
7. Personal file of Dr. Pabitra Nath, Associate Professor, Dept. of Physics.
8. Concerned file.


Registrar



तेजपुर विश्वविद्यालय / TEZPUR UNIVERSITY

(केंद्रीय विश्वविद्यालय / A Central University)

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तेजपुर-784028 :: असम / TEZPUR-784028 :: ASSAM

कुलाध्यक्ष का सर्वोत्तम विश्वविद्यालय पुरस्कार, 2016 और एनआइआरएफ भारत रैंकिंग 2016: 05
Visitor's Best University Award, 2016 and NIRF India Rankings 2016: 05

OFFICE ORDER

Dated: 10.06.2016

The competent authority is pleased to accord permission to **Dr. Rupjyoti Gogoi**, Assistant Professor, Department of Physics to attend the 2nd Indo French Astronomy School organized by the *Centre de Recherche Astrophysique de Lyon* at **CRAL, France** during **11 - 16 July, 2016** with a financial assistance of Rs. 30,000/- only.

Issued with due approval.

Registrar

Memo No. F.21-6/2012 (GA-I)(Vol.-II)/ **897-A**

dated. **10.06.2016**

Copy for information to:

1. The Dean, School of Sciences.
2. Finance Officer.
3. Head, Dept. of Physics.
4. Dr. Rupjyoti Gogoi, Assistant Professor, Department of Physics.
5. Hindi Officer, with a request to place the matter in the next meeting of BoM.
6. Secretary to the Vice Chancellor, for kind information of the Vice Chancellor.
7. Personal file of Dr. Rupjyoti Gogoi, Assistant Professor, Department of Physics.
8. Concerned file.

Registrar



तेजपुर विश्वविद्यालय / TEZPUR UNIVERSITY
(संसद के अधिनियम द्वारा स्थापित केंद्रीय विश्वविद्यालय)
(A Central University established by an Act of Parliament)
संकायाध्यक्ष का कार्यालय, शोध व विकास
OFFICE OF THE DEAN, RESEARCH & DEVELOPMENT
तेजपुर-784028 : असम : II/PUR-784028 : ASSAM

OFFICE ORDER

Dated 14/09/2017.

Permission is hereby accorded to Dr. Moon Moon Devi, Assistant Professor, Department of Physics, Tezpur University to attend the 3rd National Symposium on Particles, Detectors & Instrumentation (NSPDI-2017) to be held at Tata Institute of Fundamental Research, Mumbai-400005, India during 29/09/2017 to 08/10/2017 for paper presentation.

Dr. Moon Moon Devi is allowed to reimburse 'TA/DA' and 'Registration Fee' as per the rules from the UGC-SAP (DRS-II) under the Coordinator Professor Ashok Kumar, Department of Physics, Tezpur University, subject to availability of fund. The 'Tour Programme' submitted by Dr. Devi is also approved.

Dr. Moon Moon Devi shall apply for appropriate leave separately.

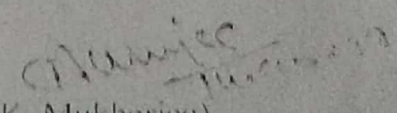
Sd/-
(A.K. Mukherjee)
Dean, Research and Development

Memo No. DoRD/Phy/UGC-SAP II/20-268/ 996-A

Dated: 14.09.2017

Copy to:

1. Head, Department of Physics, Tezpur University.
2. Professor Ashok Kumar, Coordinator UGC-SAP (DRS-II), Department of Physics, Tezpur University.
3. Finance Officer, Tezpur University.
4. Dr. Moon Moon Devi, Assistant Professor, Department of Physics, Tezpur University.
5. Concerned File.


(A.K. Mukherjee)
Dean, Research and Development



Moon Moon Devi <devi.moonmoon@gmail.com>

NSPDI17: contributory talk

nspdi@tifr.res.in <nspdi@tifr.res.in>

To: devi.moonmoon@gmail.com

Cc: nspdi@tifr.res.in

Fri, Sep 15, 2017 at 6:04 PM

Dear Moon Moon,

The Selection Committee has approved your submitted abstract to be presented as contributory talk at the NSPDI-17.

In case you have not yet paid the fee, then please pay on or before 23rd in order to avoid late fee. Also, please note that all students/post docs are required to have their guide/supervisor to send an email of approval of the abstract and presentation.

Best regards,
LOC, NSPDI17

The Effects of Majorana Phases in Estimating the Masses of Neutrinos

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Majorana CP violating phases coming from heavy right-handed Majorana mass matrices (M_{RR}) are considered to estimate the masses of neutrinos. The effects of phases on quasi-degenerate neutrinos mass matrix obeying $\mu - \tau$ symmetry predicts the results consistent with observations for (i) solar mixing angle (θ_{12}) below TBM, (ii) absolute neutrino mass parameters [m_{ee}] in neutrinoless double beta ($0\nu\beta\beta$) decay, and (iii) cosmological upper bound $\sum_i m_i$. Analysis is carried out through parameterization of light left-handed Majorana neutrino matrices (m_{LL}) using only two unknown parameters (ϵ, η) within $\mu - \tau$ symmetry. We consider the charge lepton and up quark matrices as diagonal form of Dirac neutrino mass matrix (m_{LR}), and m_{RR} are generated using m_{LL} through inversion of Type-I seesaw formula. The analysis shows that the masses of neutrinos are in agreement with the upper bound from cosmology and neutrinoless double beta decay. The results presented in this article will have important implications in discriminating the neutrinos mass models.

Keywords: Majorana phases; absolute neutrino masses; QDN models.

1. Introduction

Since the present neutrino oscillation data¹ on neutrino mass parameters are not sufficient to predict the three absolute neutrino masses in the case of quasi-degenerate neutrino (QDN) mass models,^{2–12} such mass scale is usually taken as input ranging from 0.1 to 0.4 eV in most of the theoretical calculations.¹³ As the latest cosmological tightest upper bound on the sum of the three absolute masses is $\sum_i m_i \leq 0.28\text{eV}$,^{14–16} larger value of neutrino mass $m_3 \geq 0.1\text{eV}$ in QDN models, has been disfavoured. The upper bound on $m_{ee} \geq 0.2\text{eV}$ in neutrinoless double beta decay ($0\nu\beta\beta$)^{14–16} also disfavour larger values of neutrino mass eigenvalues with

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same CP-parity. Some important points for further investigations in QDN models for both NH and IH patterns are searches for QDN models which can accomodate lower values of absolute neutrino masses $m_3 \geq 0.09\text{eV}$, solar mixing angle which is lower than tribimaximal mixing (TBM)¹⁷ and effects of CP-phases on neutrino masses. In this paper, we introduce a general classification for QDN models based on their CP-parity patterns and then parameterize the mass matrix within $\mu - \tau$ symmetry, and finally, numerical calculations are carried out.

2. Parameterizations of neutrino mass matrix

A general $\mu - \tau$ symmetric neutrino mass matrix^{18–20} with its four unknown independent matrix elements, requires at least four independent equations for realistic numerical solution.

$$m_{LL} = \begin{bmatrix} m_{11} & m_{12} & m_{13} \\ m_{21} & m_{22} & m_{23} \\ m_{31} & m_{32} & m_{33} \end{bmatrix} \quad (1)$$

The three mass eigenvalues m_i and solar mixing angles θ_{12} are given by,

$$\begin{aligned} m_1 &= m_{11} - \sqrt{2} \tan \theta_{12} m_{12}, \\ m_2 &= m_{11} + \sqrt{2} \cot \theta_{12} m_{12}, \\ m_3 &= m_{22} - m_{23}. \end{aligned} \quad (2)$$

$$\text{Thus, } \tan 2\theta_{12} = \frac{2\sqrt{2}m_{12}}{m_{11} - m_{22} - m_{23}} \quad (3)$$

The observed mass-squared differences are calculated as $\Delta m_{12}^2 = m_2^2 - m_1^2 > 0$, $\Delta m_{32}^2 = |m_3^2 - m_2^2|$. In the basis where charged lepton mass matrix is diagonal, we have the leptonic mixing matrix $U_{PMNS} = U$, where

$$U_{PMNS} = \begin{bmatrix} \cos \theta_{12} & \sin \theta_{12} & 0 \\ \frac{\sin \theta_{12}}{\sqrt{2}} & \frac{\cos \theta_{12}}{\sqrt{2}} & -\frac{1}{\sqrt{2}} \\ \frac{\sin \theta_{12}}{\sqrt{2}} & \frac{\cos \theta_{12}}{\sqrt{2}} & \frac{1}{2} \end{bmatrix} \quad (4)$$

The mass parameters m_{ee} in $\nu\beta\beta$ decay and the sum of the absolute neutrino masses in WMAP cosmological bound $\sum m_i$ are given respectively by,

$$m_{ee} = |m_1 U_{e1}^2 + m_2 U_{e2}^2 + m_3 U_{e3}^2| \quad (5)$$

$$\text{and } m_{cosmos} = m_1 + m_2 + m_3 \quad (6)$$

A general classification for three-fold quasi-degenerate neutrino mass models^{18,19} with respect to Majorana CP-phases in their three mass eigenvalues, is adopted here. Diagonalisation of left-handed Majorana neutrino mass matrix m_{LL} in Eq. 1 is given by $m_{LL} = UDU^T$, where U is the diagonalising matrix in Eq. 7 and $\text{Diag} = D(m_1, m_2 e^{i\alpha}, m_3 e^{i\beta})$ is the diagonal matrix with two unknown Majorana phases (α, β) . In the basis where charged lepton mass matrix is diagonal, the leptonic mixing matrix is given by $U = U_{PMNS}$.²⁰ We, then, adopt the following classificaion

Table 1. The absolute neutrino masses in eV, estimated from oscillation data using calculated $\psi = 0.031667$ as defined in the text.

Input m_3	Calculated ρ	NH-QD		IH-QD	
		m_1	m_2	m_1	m_2
0.40	0.015	0.39689	0.39699	0.40289	0.40299
0.10	0.24	0.08674	0.8718	0.11104	0.11136
0.08	0.375	0.06264	0.6326	0.09340	0.09381

according to their CP-parity patterns in the mass eigenvalues m_i namely **Type IA:** $(++)$ for $D = \text{Diag}(m_1, -m_2, m_3)$; **Type IB:** $(+++)$ for $D = \text{Diag}(m_1, m_2, m_3)$ and **Type IC:** $(+-)$ for $D = \text{Diag}(m_1, -m_2, -m_3)$ respectively. We now introduce the following parameterization for μ - τ symmetric neutrino mass matrices μ_{LL} which could satisfy the above classifications.^{18, 19}

2.1. Parameterizations:

In the next step, we parameterize the mass matrix Eq. 1 into three types:

Type IA with $D = \text{Diag}(m_1, -m_2, m_3)$: The mass matrix of this type^{18, 19} can be parameterized using two parameters (ϵ, η) :

$$m_{LL} = \begin{bmatrix} \epsilon - 2\eta & -c\epsilon & -c\epsilon \\ -c\epsilon & \frac{1}{2} - d\eta & -\frac{1}{2} - \eta \\ -c\epsilon & -\frac{1}{2} - \eta & \frac{1}{2} - d\eta \end{bmatrix} m_0 \quad (7)$$

This predicts the solar mixing angle, $\tan \theta_{12} = -\frac{2c\sqrt{2}}{1+(d-1)\frac{\eta}{\epsilon}}$. When $c = d = 1.0$, we get the Tri-Bimaximal Mixing(TBM) $\tan 2\theta_{12} = -2\sqrt{2}(\tan^2 \theta_{12} = 0.50)$ and the values of ϵ and η are calculated for both NH-QD and IH-QD cases, by using the values of Table-1 in these two expressions: $m_1 = (2\epsilon - 2\eta)m_3$ and $m_2 = (-\epsilon - 2\eta)m_3$. We calculate for $\tan^2 \theta_{12} = 0.50$ and $\tan \theta_{12} = 0.45$. The solar angle can be further lowered by taking the values $c < 1$ and $d > 1$ while using the earlier values of ϵ and η extracted using TBM.

Type-IB with $D = \text{Diag}(m_1, m_2, m_3)$: This type^{18, 19} of quasi-degenerate mass pattern is given by the mass matrix,

$$m_{LL} = \begin{bmatrix} 1 - \epsilon - 2\eta & c\epsilon & c\epsilon \\ c\epsilon & 1 - d\eta & -\eta \\ c\epsilon & -\eta & 1 - d\eta \end{bmatrix} m_3 \quad (8)$$

This predicts the solar mixing angle,

$$\tan 2\theta_{12} = \frac{2c\sqrt{2}}{1 + (1-d)\frac{\eta}{\epsilon}} \quad (9)$$

which gives the TBM solar mixing angle with the input values $c=1$ and $d=1$. Like in Type-IA, here ϵ and η values are computed for NH-QD and IH-QD, by using Table-1 in $m_1 = (1 - 2\epsilon - 2\eta)m_3$ and $m_2 = (1 + 2 - 2\eta)m_3$. $m_1 = (1 - 2\epsilon - 2\eta)m_3$.

Type-IC with $D = \text{Diag}(m_1, m_2, -m_3)$: It is not necessary to treat this model^{18,19} separately as it is similar to Type-IB except the interchange of two matrix elements (22) and (23) in the mass matrix in Eq. 8, and this effectively imparts an additional odd CP-parity on the third mass eigenvalue m_3 in Type-IC. Such change does not alter the predictions of Type-IB. Our numerical results for both $\tan \theta_{12} = 0.5$ and 0.45 cases, in all types of QD models (Type-IA, IB) are consistent with observational bound from cosmological and both NH and IH patterns are valid within quasi-degenerate model.

3. Numerical Analysis and Results

For numerical computation of absolute neutrino masses, we take the following observational data: $\Delta m_{12}^2 = m_2^2 - m_1^2 = 7.6 \times 10^{-5} \text{ eV}^2$, $|\Delta m_{32}^2| = |m_3^2 - m_2^2| = 2.40 \times 10^{-3} \text{ eV}^2$; and define the following parameters $\phi = \frac{|\Delta m_{23}^2|}{m_3^2}$ and $\psi = \frac{\Delta m_{21}^2}{|\Delta m_{23}^2|}$, where m_3 is the input quantity. For NH-QD, the other two mass eigenvalues are estimated from $m_2 = m_3 \sqrt{1 - \phi}$; $m_1 = m_3 \sqrt{1 - \phi(1 + \psi)}$ and for IH-QD from $m_2 = m_3 \sqrt{1 + \phi}$; $m_1 = m_3 \sqrt{1 + \phi(1 - \psi)}$. For suitable input value of m_3 , one can estimate the values of m_1 and m_2 for both NH-QD and IH-QD cases, using the observational values of $|\Delta m_{23}^2|$ and Δm_{21}^2 . Table-1 gives the calculated numerical values for two models namely, NH-QD and IH-QD for $|\Delta m_{23}^2| = 7.6 \times 10^{-5} \text{ eV}^2$ and $\Delta m_{21}^2 = 2.40 \times 10^{-3} \text{ eV}^2$.

4. Conclusion

We have studied the effects of Majorana phases on the predictions of absolute neutrino masses in three types of quasi-degenerate neutrino mass models having both normal and inverted hierarchical patterns within μ - τ symmetry. These predictions are consistent with data on the mass squared difference derived from various oscillation experiments, and from the upper bound on absolute neutrino masses in $0\nu\beta\beta$ as well as upper bound of cosmology. The results presented in this article will have important implications in the discrimination of neutrino mass models.

Acknowledgements

This work is carried out through the DST-SERB, Govt. of India, Research project entitled “**Neutrino mass ordering, leptonic CP violation and matter-antimatter asymmetry**” vide grant no. **EMR/2015/001683**.

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Thursday, July 25th

Opening Session

Welcome Remarks	Albrecht Karle
Remarks and Awards	Sunil Gupta

Highlight Talks

Highlights from the Pierre Auger Observatory and Prospects for AugerPrime	Antonella Castellina
Non-Gamma-ray Applications of TeV Telescopes	Michael Daniel

Cosmic Ray Indirect - CRI1

Observing Ultrahigh-energy Cosmic Rays with Prototypes of Fluorescence Detector Array of Single-pixel Telescopes (FAST) in Both Hemispheres	Toshihiro Fujii
Status and prospects of the TAX4 experiment	Eiji Kido
Results from the First Missions of the JEM-EUSO Program	Francesco Fenu
Search for Ultra-High Energy Cosmic Rays from Space - the JEM-EUSO Program	Mario E. Bertaina

The GRANDProto300 experiment

Valentin Decoene

Gamma Ray Indirect - GAI1

Status and First Results of the LHASSO Experiment	Huihai He
The H.E.S.S. experiment: current status and future prospects	Heike Prokoph
The Cherenkov Telescope Array	Daniel Mazin
Status of the Davies Cotton and Schwarzschild-Coude Medium Sized Telescopes for the Cherenkov Telescope Array	Jean-Francois Glicenstein
Cherenkov Telescope Array Science: A multi-wavelength and multi-messenger perspective	Ulisses Barres De Almeida

Neutrino - NU1

Multi-messenger interpretation of neutrinos from TXS 0506+056	Walter Winter
Calorimetric Neutrino Expectations from Bright Blazar Flares	Michael Kreter
The Pros and Cons of Beyond Standard Model Interpretations of ANITA Events	T.J. Weiler
High-energy neutrinos from interactions in the Local Bubble	Makarim Bouyahiaoui
Neutrinos and UHECR nuclei from blazars: from a single-source model to a population study	Xavier Rodrigues
High-energy neutrinos from individual blazar flares	Foteini Oikonomou

Cosmic Ray Direct - CRD1

Antiproton Flux and Properties of Elementary Particle Fluxes in Primary Cosmic Rays Measured with the Alpha Magnetic Spectrometer on the ISS	Cheng Zhang
AMS-02 Antiprotons are Consistent with a Secondary Astrophysical Origin	Mathieu Boudaud
Features in Cosmic-Ray Lepton Data Unveil the Properties of Nearby Cosmic Accelerators	Ottavio Fornieri
Search for Cosmic-Ray Antideuterons with BESS-Polar II	Kenichi Sakai
GAPS: Searching for Dark Matter using Antinuclei in Cosmic Rays	Ralph Bird

Voyager 2 Observations of the Anisotropy of Anomalous Cosmic Rays in the Heliosheath	Alan Cummings
Accelerations of Anomalous Cosmic Rays: Solar Cycle Variations	Jozsef Kota
A new set of self-consistent very local interstellar spectra for electrons, positrons, protons and light nuclei	Driaan Bisschoff
QuarkNet Coordination in Outreach for the Cosmic Ray Experiment During a Solar Eclipse	Mark Adams
Study of the solar magnetic field influence on the cosmic ray Sun shadow	Yuncheng Nan

Cosmic Ray Indirect - CRI2

Latest Results from the KASCADE-Grande Data Analysis	Andreas Huangs
Xmax reconstruction and mass composition of cosmic rays with LOFAR	Stijn Buitink
TALE FD Cosmic Rays Composition Measurement	Tareq AbuZayyad
Telescope Array 10 Year Composition	William F. Hanlon
Mass Composition of Cosmic Rays with Energies above $10^{17.2}$ eV from the Hybrid Data of the Pierre Auger Observatory	Alexey Yushkov
Estimating the Depth of Shower Maximum using the Surface Detectors of the Pierre Auger Observatory	Carlos J. Todero Peixoto

Gamma Ray Indirect - GAI2

H.E.S.S. Observations of Pulsars at Very High Energies	Marion Spir-Jacob
First HAWC Spectra of Galactic Gamma-ray Sources Above 100 TeV and the Implications for Cosmic-ray Acceleration	Kelly Malone
Constraining the Properties of the Interstellar Turbulence around Geminga using HAWC Measurements	Gwenael Giacinti
Shedding (gamma) light on the cosmic ray population in the Galactic Center region	Sofia Ventura
A Survey of the TeV Emission from Galactic Supernova Remnants with HAWC	Henrike Fleischhack
Discovery of the TeV Emission from the Jet Interaction Regions of SS 433 with HAWC	Hao Zhou

A complementary view on the galactic plane in TeV gamma rays
by HAWC and H.E.S.S.

Armelle Jardin-Blicq

Cosmic Ray Direct - CRD2

Observation of Complex Time Structures in the Cosmic-Ray Electron and Positron Fluxes by the Alpha Magnetic Spectrometer on the ISS	Matteo Duranti
Towards Understanding the Origin of Cosmic-Ray Electrons	Weiwei Xu
Extended Measurement of Cosmic-Ray Electron and Positron Spectrum from CALET on the ISS	Shoji Torii
GALPROP Code for Galactic Cosmic Ray Propagation and Associated Photon Emissions	Igor Moskalenko
Observation of time evolution of cosmic ray electron and positron flux with Dark Matter Particle Explorer	Jingjing Zang
Multi messenger constraints to the emission of cosmic ray electrons	Fiorenza Donato
Towards Understanding the Origin of Cosmic-Ray Positrons	Zhili Weng

Solar & Heliospheric - SH2

Solar Modulation of Galactic Cosmic-Ray Electrons Measured with CALET	Shoko Miyake
Numerical Modeling of Galactic Cosmic Ray Proton and Helium Observed by AMS-02 During the Solar Maximum of Solar Cycle 24	Claudio Corti
Time dependence of the proton and helium fluxes measured by PAMELA during solar minimum (2006-2009)	Nadir Marcelli
Isotope solar modulation with the PAMELA experiment	Riccardo Munini
Solar modulation of cosmic rays in a semi-analytical framework	Marco Kuhlen
Neutron Monitor Time-delay Measurements to Track Cosmic Ray Spectral Variation Due to Solar Modulation at High and Low Cutoff Rigidity	Paul Evenson
Effects of scattering parameters on charge-sign-dependent cosmic ray modulation	Mabedle Donald Ngobeni

Neutrino - NU2

Fundamental Physics with High-Energy Astrophysical Neutrinos Today and in the Future	Mauricio Bustamente
Flaring Rate Distribution of Gamma-Ray Blazars and Implications for High-Energy Neutrino Emission	Kenji Yoshida
Expectations from the assumption of hadron-hadron collisions for high energy neutrinos	Carlo Mascaretti
Multi-Messenger Connection among High-Energy Cosmic Particles	Kohta Murase
Measurement of the high-energy all-flavor neutrino- nucleon cross section with IceCube	Tianlu Yuan

Friday, July 26th

Review Talks

A Brief History of Neutrino Astronomy	Francis Halzen
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Highlight Talks

High-energy neutrinos from persistent and transient activities of compact objects	Ke Fang
Highlights from the Telescope Array	Shoichi Ogio
Multi-Messenger Observations of GRBs: The GW connection	Elisabetta Bissaldi

Cosmic Ray Indirect - CRI3

The Scintillator Upgrade of IceTop: Performance of the Prototype Array	Matt Kauer
IceTop as veto for IceCube: results	Delia Tosi
Modeling the LAGO's detectors response to secondary particles at ground level from the Antarctic to Mexico	Jesus Peña
EUSO-TA ground based fluorescence detector: analysis of the detected events	Francesca Bisconti

Gamma Ray Indirect - GAI3

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LHAASO-WCDA experiment	Juan Cortina
Status of the Large Size Telescopes of the Cherenkov Telescope Array	
Cherenkov Telescope Array Potential in PeVatron Search	E. Oguzhan Angüner
A next-generation ground-based gamma-ray survey observatory in the southern hemisphere	Harm Schoorlemmer
Astrophysical measurements with the VERITAS Stellar Intensity Interferometer	Nolan Matthews
Latest news from the HAWC outrigger array	Vincent Marandon

Neutrino- NU3

Search for neutrinos in IceCube from the local anisotropic universe using 2MRS	Stephen Sclafani
ANTARES search for point sources of neutrinos with 9 yr of data: a likelihood stacking analysis	Julien Aublin
Searching for High-Energy Neutrino Emission from TeV Pulsar Wind Nebulae	Qinrui Liu
Recent Results from the Askaryan Radio Array	Amy Connolly
Searches for Ultra-High-Energy Neutrinos with ANITA	Cosmin Deaconu
A search for counterparts to ANITA neutrino candidates with IceCube	Alex Pizzuto

Cosmic Ray Direct - CRD3

SuperTIGER Abundances of Galactic Cosmic-Rays for the Charge Interval Z=41-56	Nathan Walsh
Measurements of Heavy Cosmic Ray Nuclei Fluxes with CALET	Yosui Akaike
CALET Ultra Heavy Cosmic Ray Observations on the ISS	Brian Rauch
Elemental Source Composition Measurements and the Origin of Galactic Cosmic Rays	Martin Israel
Galactic Cosmic Ray Energy Spectra for Heavy Elements (Ne to Zn) from ~0.8 to ~10 GeV/nuc with the SuperTIGER Instrument	Allan W. Labrador

Gamma Ray Direct - GAD1

High-energy emission from GRBs: 10 years with Fermi-LAT	Elisabetta Bissaldi
Radiative Signatures of Relativistic Reconnection in Blazar Jets	Ian Christie
Fermi-LAT Observations of Gamma-Ray Emission Towards the Outer Halo of M31	Chris Karwin
Systematic search for gamma-ray periodicity in Fermi-LAT blazars	Pablo Peñil
Very-high-energy GRB events in novel Fermi-LAT photon data and their emission mechanism	Mitsunari Takahashi

Cosmic Ray Indirect - CRI4

ValuPrimary Cosmic-ray Spectra and Composition in the Energy Range of 50 TeV-10 ¹⁶ eV with the New Tibet Hybrid Experiment (YAC-II + Tibet-III + MD)	Jing Huang
Energy spectrum and composition measurements of cosmic rays from GRAPES-3 experiment	Fahim Varsi
The spectrum of the light component of TeV cosmic rays measured with HAWC	J.C. Arteaga- Velazquez
Low Energy Cosmic Ray Spectrum from 250 TeV to 10 PeV using IceTop	Ramesh Koiral
First Results from NICHE and the NICHE-TALE Hybrid Detector	Douglas R. Bergman
The Cosmic Ray Energy Spectrum above 2 PeV measured by the TALE Fluorescence Telescopes	Jihee Kim
Telescope Array Low energy Extension(TALE) Hybrid	Shoichi Ogio
The Cosmic Ray Spectrum of Light Component above 10TeV Measured by LHAASO Experiment	Zhiyong You

Gamma Ray Indirect - GAI4

ValuHighlights from the Observations of the Milky Waywith H.E.S.S.	Nukri Komin
Observation of Gamma-ray Emission Above 10 TeV from the	Takashi Sako

MAGIC observations of Dragonfly Nebula using the Very Large Zenith Angle technique at energies above TeV	Darko Zaric
The population of TeV gamma-ray sources in the Milky Way: the hidden part of the iceberg	Constantin B. Steppa

Neutrino - NU4

Measurement of the diffuse astrophysical muon-neutrino spectrum with ten years of IceCube data	Jöran Stettner
Characterization of the Astrophysical Diffuse Neutrino Flux with High-Energy Starting Events and Prospects for Future Measurements with IceCube	Austin Schneider
Atmospheric Neutrinos Detected with the First KM3NeT Detection Units of ARCA and ORCA	Jannik Hofestädt
Model Independent Unfolding of the Atmospheric Neutrino Event Rate by Volume in the 0.1-600 GeV Range	Joakim Sandroos
Bounds on Diffuse and point source fluxes of ultra-high energy neutrinos with the Pierre Auger Observatory	Francisco Pedreira
The Baikal-GVD neutrino telescope: cascade events results	Rastislav Dvornický
Study of the high-energy neutrino diffuse flux with the ANTARES neutrino telescope	Luigi Antonio Fusco
Model-independent Measurement of the Atmospheric Muon Neutrino Energy Spectrum up to 2.5 PeV	Jan Soedingrekso

Cosmic Ray Direct - CRD4

Anisotropy of Elementary Particle Fluxes in Primary Cosmic Rays Measured with the Alpha Magnetic Spectrometer on the ISS	Iris Gebauer
Model of Cosmic Ray Knee in the Case of Anisotropic Diffusion	Makarim Bouyahiaoui
Cosmic Rays and Magnetic Fields in the Core and Halo of the Starburst M82: Implications for Galactic Winds	Benjamin J. Buckman
Penetration of Cosmic Rays into Dense Molecular Clouds	Alexei Ivlev
Anisotropy Searches with DAMPE	Maria Munoz

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Cosmic ray small-scale anisotropies in quasi-linear theory	Philipp Mertsch
An All-sky Search for Cosmic-ray Proton Anisotropy with the Fermi Large Area Telescope	Justin Vandenbroucke

Solar & Heliospheric - SH3

Providing Long-term Measurements of 5 - 50 MeV/nucleon Proton and Helium Intensities – A new Data Product for SOHO/EPHIN	Patrick Kühl
Occurrence of 3He-rich Solar Energetic Particles near Earth and Close to the Sun	Mark E. Wiedenbeck
The Influence of Coronal Mass Ejection Characteristics on the Spread of Solar Energetic Particles	C.M.S. Cohen
Statistical study of solar energetic electron spectra with STEREO/SEPT	Patrick Kuehl

Saturday, July 27th

Review Talks

Thermal WIMPs on the Brink	Tim Linden
Exploring the Extreme Universe with Gamma-ray Observations	Reshmi Mukherjee

Highlight Talks

The CALorimetric Electron Telescope (CALET) on the International Space Station	Yoichi Asaoka
Recent Results of Cosmic Ray Measurements from IceCube and IceTop	Dennis Soldin
Latest Results from the Alpha Magnetic Spectrometer on the International Space Station	Bruna Bertucci

Neutrino - NU5

ANTARES-IceCube Combined Search for Neutrino Point Sources in the Southern Hemisphere	Giulia Illuminati
All Sky Time-Integrated Point Source Searches using	Tessa Carver

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Search for High-energy Neutrinos from AGN Cores	Federica Bradascio
Search for Astronomical Neutrino from Blazar TXS0506+056 in Super-Kamiokande	Kaito Hagiwara
Searching for Time-Dependent Neutrino Emission from Blazars	Erin O'Sullivan

Cosmic Ray Indirect - CRI5

The Effects of the Galactic Magnetic Field on UHECR From Local Sources	Andrew M. Taylor
Evidence for UHECR Origin in Starburst Galaxies	Jorge F. Soriano
Search for magnetically-induced signatures in the arrival directions of ultra-high energy cosmic rays measured by the Pierre Auger Observatory	Marcus Wirtz
Developments in Modeling the Galactic Magnetic Field	Glennys Farrar
Propagation of Ultra-high-energy Cosmic Rays in the Magnetized Cosmic Web	Jihyun Kim
New constraints on galactic CRE transport from radio continuum observations	Ralf-Juergen Dettmar

Cosmic Ray Indirect - CRI6

Latest results for Proton-proton Cross Section Measurements with the TOTEM experiment at LHC	Francesco Cafagna
Future Proton-Oxygen Beam Collisions at the LHC for Air Shower Physics	Hans Dembinski
The results and future prospects of the LHCf experiment	Hiroaki Menjo
Measurements of the very-forward energy in pp collisions at the LHC and constraints for cosmic ray air showers	Sebastian Baur
The Cosmic-Ray Program of the NA61/SHINE facility at the CERN SPS	Michael Unger
Collective Hadronization and Air Showers: Can LHC Data Solve the Muon Puzzle ?	Tanguy Pierog

Solar & Heliospheric - SH4

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scale: A new multi-proxy reconstruction	
Obtaining a History of the Flux of Cosmic Rays using In Situ Cosmogenic Carbon-14 Trapped in Polar Ice	Segev BenZvi
Spectra of solar energetic particle and galactic cosmic rays over a million years reconstructed using aluminium-26 data from lunar rocks	Stepan V. Poluianov
Long-term variation of galactic cosmic ray intensity observed with the Nagoya multidirectional muon detector	Kazuoki Munakata
27-Day Modulation of Cosmic Ray Intensities During the Last Two Solar Minima	Richard A. Leske

Gamma Ray Direct - GAD2

Shell like Supernova Remnants Observed with Fermi-LAT	Francesco de Palma
Gamma-ray Spectral and Morphological study of HESS J1912+101 observed by MAGIC and Fermi-LAT	David Green
Efficient particle acceleration from HESS J1640.6-4633 and the PeVatron candidate HESS J1641.0-4619	Arnaud Mares
Gamma-ray Pulsars with DAMPE	Maria Munoz
Energy-dependent morphology of the pulsar wind nebula HESS J1825-137 seen by the Fermi-LAT	Giacomo Principe
η Carinae: particle acceleration and multi-messenger aspects	Roland Walter

Gamma Ray Indirect - GAI5

MAGIC eyes to the extreme: testing the blazar emission models on EHBLs	Elisa Prandini
ValueObservations of the FSRQ 3C 279 during the flaring state of June 2018 with H.E.S.S	Gabriel Emery
FACT - Highlights from more than Seven Years of Unbiased Monitoring at TeV Energies	Thomas Bretz
Variability Study of Extreme Blazars with VERITAS	Orel Gueta
Resolving the kpc jet of Centaurus A in TeV gamma-rays	Mathieu de Naurois

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VHE detection and monitoring of the radio galaxy 3C 264	Jodi Christiansen
Investigating the unusually hard gamma-ray spectrum of the extreme blazar 1ES 0229+200 with HAWC	Thomas Weisgarber

Cosmic Ray Indirect - CRI7

Cosmic Ray Spectrum and Composition from PeV to EeV from the IceCube Neutrino Observatory	Karen G. Andeen
The Energy Scale of the Pierre Auger Observatory	Bruce R. Dawson
Measurement of the Cosmic Ray Flux near the Second Knee with the Pierre Auger Observatory	Alan Coleman
Measurement of the energy spectrum of ultra-high energy cosmic rays using the Pierre Auger Observatory	Valerio Verzi
Energy Spectrum Measured by the Telescope Array	Dmitri Ivanov
The energy spectrum of ultra-high energy cosmic rays measured at the Pierre Auger Observatory and at the Telescope Array	Olivier Deligny
From the Observation of UHECR Radio Signal in [1- 200] MHz to the Composition: CODALEMA and EXTASIS Status Report	Antony Escudie

Cosmic Ray Direct - CRD5

Non-linear Diffusion of Cosmic Rays Escaping from Supernovae Remnants in the Cold Partially Neutral Atomic and Molecular Phases	Loann Brahimi
Study on the anisotropic diffusion and large-scale anisotropy of the galactic cosmic rays	Hongbo Hu
Core-collapse Supernovae as Cosmic Ray Sources	Vikram V. Dwarkadas
Acceleration and escape of first cosmic rays	Yutaka Ohira
Particle acceleration by shock waves propagating in a non-uniform medium	Shota Yokoyama
Three dimensional global test particle simulation of cosmic-ray acceleration and escape in supernova remnants	Shoma Kamijima
On the Spectrum of Electrons Accelerated in Supernova Remnants	Rebecca Diesing

Cosmic-ray detection with and novel reconstruction algorithms for the ARIANNA experiment	Anna Nelles
Seven years of Tunka-Rex operation	Vladimir Lenok
Coherent transition radiation from the geomagnetic air shower current	Krijn D. de Vries
Symmetrizing the signal distribution of radio emission from inclined air showers	Tim Huege
Frequency-optimised radio air shower arrays for enhanced performance	Aswathi Balagopal V.
Measurements of Inclined Air Showers with the Auger Engineering Radio Array at the Pierre Auger Observatory	Marvin Gottowik
The energy scale of cosmic rays detected with LOFAR	Katharine Mulrey

Neutrino - NU6

Multi-messenger Gravitational-Wave + High-Energy Neutrino Searches with LIGO, Virgo and IceCube	Azadeh Keivani
IceCube Search for Galactic Neutrino Sources based on HAWC Observations of the Galactic Plane	Ali Kheirandish
Search for Correlations of High-energy Neutrinos and Ultra-high Energy Cosmic Rays	Anastasia Maria Barbano
ANTARES 2007-2017 Search for Point Sources Using All Neutrino Flavours	Sergio Navas
Probing neutrino emission at GeV energies from compact binary mergers with IceCube	Gwenhaël De Wasseige
A DECam Search for Explosive Optical Transients Associated with IceCube Neutrinos	Robert A. Morgan
Observation of Optical Transients and Search for PeV-EeV Tau Neutrinos with Ashra-1	Satoru Ogawa
ANTARES search for high-energy neutrinos from TeV- emitting blazars, Markarian 421 and 501, in coincidence with HAWC gamma-ray flares	Mukharbek Organokov

Monday, July 29th

[The Dynamical Role of Cosmic Rays in Galaxies](#)

Ellen Zweibel

Highlight Talks

Results from IceCube	Dawn Williams
Probing High-Energy Hadronic Interactions with Extensive Air Showers	Lorenzo Cazon
Combined Dark Matter Searches Towards Dwarf Spheroidal Galaxies with Fermi-LAT, HAWC, HESS, MAGIC and VERITAS	Louise Oakes

Cosmic Ray Indirect - CRI9

Search for the diffuse gamma ray emission from the galactic plane in 100 TeV region	Yuhua Yao
Non-thermal emission from the reverse shock of the youngest galactic Supernova remnant G1.9+0.3	Martin Pohl
Undiscovered Pulsar as the Explanation of the High-energy Cosmic Ray All-electron Flux	Ruben Lopez-Coto
Gamma-Ray Bursts as Sources of Ultra-High Energy Cosmic Rays across the Ankle	Daniel Biehl
Ultra-high-energy cosmic rays by Cygnus A or the bulk of non-local radio galaxies?	Björn Eichmann
A parametrized catalog of radio galaxies as UHECR sources	Jörg P. Rachen

Gamma Ray Indirect - GAI6

Searching for Variability of the Crab Nebula Flux at TeV Energies using MAGIC Very Large Zenith Angle Observations	Juliane van Scherpenberg
Orbital parameters for the gamma-ray binaries LMC P3 and 1FGL J1018.6-5856	Brian van Soelen
Long-term gamma-ray observations of the binary HESS J0632+057 with H.E.S.S., MAGIC and VERITAS	Gernot Maier
Probing orbital parameters of gamma-ray binaries with TeV light curves	Iurii Sushch
X-ray and TeV gamma-ray emission from the 50-year	Tyler Williamson

Characterizing the VHE Emission of LS I +61 303 using
VERITAS Observations

David Kieda

Neutrino - NU7

The IceCube Upgrade - Design and Science Goals	Aya Ishihara
KM3NeT/ORCA Detector for Neutrino Research at the Bottom of the Mediterranean Sea	Bruno Strandberg
Neutrino telescope in Lake Baikal: Present and Future	Fedor Simkovic
Status and prospects of the Hyper-Kamiokande project	Yoshitaka Itow
Performance of the ARIANNA pilot array, and implications for the next generation of UHE neutrino detectors	Christian Glaser
Radio Phased Arrays: A low-threshold detector in the Askaryan Radio Array (ARA)	Eric Oberla

Solar & Heliospheric - SH5

ORCA (Antarctic Cosmic Ray Observatory): 2018 Latitudinal Survey	Juan Jose Blanco
Galactic Cosmic-Ray Anisotropy During Forbush Decreases: Evidence for Diffusive Barriers and Large-Scale Flow	Alejandro Sáiz
Long Duration Gamma-ray Flares and High Energy Solar Energetic Particles: Is there a Connection?	G.A. de Nolfo
Modeling the 2017 September 10 Long Duration Gamma Ray Flare	James Ryan
Solar Energetic Particles measured by the Alpha Magnetic Spectrometer on the International Space Station during solar cycle 2	Veronica Bindi

Gamma Ray Direct - GAD3

Recent Gamma-ray Results from DAMPE	Xiang Li
All-Sky Medium Energy Gamma-ray Observatory (AMEGO)	Alexander Moiseev
High-Energy Gamma-ray Observations Using the CALorimetric Electron Telescope (CALET) on the ISS	Masaki Mori

BurstCube: Mission Concept, Performance, and Status	Jacob Smith
Overview of the POLAR Mission	Jinchao Sun

Cosmic Ray Indirect - CRI10

A New View on Auger Data and Cosmogenic Neutrinos in Light of Different Nuclear Disintegration and Air-shower Models	Anatoli Fedynitch
Ultra-high Energy Cosmic Rays and Neutrinos from Light Nuclei Composition	Soebur Razzaque
Cosmic ray transport in starburst galaxies and possible observables	Enrico Peretti
Constraints on UHECR sources and their environments, from fitting UHECR spectrum and composition, and neutrinos and gammas	Marco Muzio
Follow-up searches for ultra-high energy neutrinos and photons from transient astrophysical sources with the Pierre Auger Observatory	Michael Schimp
Telescope Array Search for EeV Photons	Mikhail Kuznetsov
POEMMA: Probe Of Extreme Multi-Messenger Astrophysics	Angela V. Olinto

Gamma Ray Indirect - GAI7

Extreme High-energy Peaked BL Lac Objects and their TeV Gamma-ray Emission: Are They a Homogeneous Population?	Luca Foffano
A Northern Sky Survey for 100TeV Gamma-ray Sources Using the Tibet Air Shower Array and Muon Detector Array	Xu Chen
Possible origin of the slow-diffusion region around Geminga	Kun Fang
Spectral and Morphological Studies of the Very High Energy Gamma-Ray Source 2HWC J1825-134	Francisco Salesa Greus
Electron Spectrum of the Dragonfly Pulsar Wind Nebula from X-ray to TeV	Chad Brisbois

Gamma Ray Indirect - GAI8

MAGIC observation and broadband characterization of the remarkably bright flares of 1ES 1959+650 in 2016	Mitsunari Takahashi
Sub-parsec and parsec VHE emission from the core of LLAGNs	Juan C. Rodríguez Ramírez
Revisit of non-linear Landau damping for electrostatic instability driven by blazar-induced pair beams	Martin Pohl
Unravelling the complex behavior of Mrk421 with simultaneous X-ray and VHE observations during an extreme flaring activity in April 2013	Ana Babic
Highlights from the VERITAS AGN Observation Program	Wystan Benbow
A survey of active galaxies with the HAWC gamma-ray observatory	Alberto Carramiñana
Broadband emission of blazar S5 0716+714 during impressive outbursts	Yuki Kajiwara
A 3-year HAWC/Swift monitoring of gamma-ray/X-ray flux and correlations in the BL Lac Mrk 421	José Andrés García-González

Cosmic Ray Direct - CRD6

Cosmic ray transport from AMS-02 B/C data: reference parameters and physical interpretation	Yoann Genolini
Properties of Secondary Cosmic Rays Lithium, Beryllium and Boron Measured by the Alpha Magnetic Spectrometer on the International Space Station	Alberto Oliva
Cosmic-Ray Helium Isotopes with the Alpha Magnetic Spectrometer	Carlos Delgado
Cosmic-Ray Lithium Isotopes with the Alpha Magnetic Spectrometer	Laurent Derome
Overall Status of the High Energy Cosmic Radiation Detection Facility Onboard the Future China's Space Station	Yongwei Dong
Fitting B/C cosmic-ray data in the AMS-02 era	Laurent Derome
Is the B/C slope in AMS-02 data actually telling us something about the diffusion coefficient slope ?	Manuela Vecchi

Dark Matter - DM1

Potential Dark Matter Signals at Neutrino Telescopes	Marco Chianese
Interpretation of the CALET Electron+Positron Spectrum concerning Dark Matter Signatures	Holger M. Motz
Searches for dark matter with the ANTARES and KM3NeT neutrino telescopes	Rebecca Gozzini
Status of cosmic-ray antinuclei searches	Philip von Doetinchem
Constraints on dark matter scattering with long-lived mediators using gamma-rays from the Sun	Davide Serini
Perspective on dark matter annihilation limits from the LHAASO gamma-ray observation of dwarf Spheroidal galaxies	Xiaojun Bi
Reverse Direct Detection: Cosmic Ray Scattering With Light Dark Matter	Kenny C. Y. Ng
Recent Results from the Dark Matter Search of DAMIC-100 at SNOLAB	Dan Baxter

Tuesday, July 30th

Review Talks

Physics and Astrophysics with Ultra-High Energy Cosmic Neutrinos	Abigail Vieregg
Gamma-ray Insights into Cosmic-ray transport	Gwenaél Giacinti

Highlight Talks

Testing cosmic ray acceleration in the laboratory	Subir Sarkar
Highlights from the Tibet ASgamma Experiment	Kazumasa Kawata
Results from the Mediterranean neutrino detectors	Rosa Coniglione

Cosmic Ray Indirect - CRI11

Large-scale anisotropies above 0.03 EeV measured by the Pierre Auger Observatory	Esteban Roulet
Full-sky searches for anisotropies in UHECR arrival directions	Armando di Matteo

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Anisotropy in the mass composition from the Telescope Array Surface Detector data	Yana Zhezher
On the origin of ultra-high energy cosmic ray anisotropy	Chen Ding
Anisotropies of the Highest Energy Cosmic-ray Events Recorded by the Pierre Auger Observatory in 15 years of Operation	Lorenzo Caccianiga
Supergalactic Structure of Energy-Angle Correlations	Jon Paul Lundquist

Gamma Ray Indirect - GAI9

Study of Middle-aged Pulsar Wind Nebulae Showing Large Offsets Between their Pulsar and their VHE Gamma- ray Emission	Michelle Tsirou
Highest Energy Photons Ever Observed and High-Energy Crab Spectrum	James T. Linnemann
The Crab Nebula Spectrum at ~ 100 TeV Measured With MAGIC Under Very Large Zenith Angles	Michele Peresano
Modeling of Broadband Spectra and Radial Profiles of Emission of Pulsar Wind Nebulae	Wataru Ishizaki

Neutrino - NU8

Measurement of the Atmospheric Neutrino Oscillation Parameters with NOvA	Matthew Strait
High-energy Neutrino Event Simulation at NLO in Genie for KM3NeT and Other Observatories	Alfonso Garcia
A new calculation of Earth-skimming very- and ultra-high energy tau neutrinos	Mary Hall Reno
Characterizing the High Energy Activity of Blazars Possibly Correlated with Observed Astrophysical Neutrinos	Ankur Sharma
First double cascade tau neutrino candidates in IceCube and a new measurement of the flavor composition" is confirmed	Juliana Stachurska

Cosmic Ray Direct - CRD7

Properties of Primary Cosmic Rays Neon, Magnesium and	Qi Yan
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Elemental analysis of Cosmic-Ray flux with DAMPE	Ya-Peng Zhang
Cosmic-Ray Elemental Spectra Measured with ISS-CREA	Ryuji Takeishi
The Status of DAMPE Satellite in Space	Yunlong Zhang
Cosmic Ray Energetics And Mass for the International Space Station (ISS-CREAM)	Eun-Suk Seo

Dark Matter - DM2

Searching for Dark Matter decay signals in the Galactic halo with the MAGIC telescopes	Daniele Ninci
Recent results from the DM-Ice17 and COSINE-100 experiment	Jay Hyun Jo
Dark Matter Search with H.E.S.S. Towards Ultra-faint Dwarf Nearby DES Satellites of the Milky Way	Lucia Rinchuso
Combined Search for Neutrinos from Dark Matter Annihilation in the Galactic Centre using ANTARES and IceCube	Nadège Iovine

Cosmic Ray Indirect - CRI12

Espresso Acceleration of Ultra-High-Energy Cosmic Rays in Realistic Jet Environments	Rostom Mbarek
Electron Acceleration at Rippled Low Mach Number Shocks in Merging Galaxy Clusters	Jacek Niemiec
The role of re-acceleration in the understanding of Cosmic-Ray direct and indirect data	Martina Cardillo
The Issue with Diffusive Shock Acceleration	Damiano Caprioli
Modeling the saturation of the Bell instability using hybrid simulations	Georgios Zacharegkas
Acceleration of He nuclei at non-relativistic collisionless shocks	Cory Cotter
On measuring the cosmic-ray production rate in supernova remnant shocks by polarized Balmer line emission	Jiro Shimoda

Gamma Ray Indirect - GAI10

Constraining the magnetic field in the EM170817	Stefan Ohm
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Gamma-rays and neutrinos from IXS U506+U507: Interpretation of the 2018/2019 MAGIC and MWL monitoring campaign	Matteo Cerruti
Recent results from the VERITAS multi-messenger program	Marcos Santander
Search for very-high-energy photons from gamma-ray bursts with HAWC	Nissim Fraija
Search for gamma-ray counterparts of gravitational wave events with HAWC	Israel Martinez-Castellanos

Neutrino - NU9

Neutrino source searches and a realtime neutrino alert stream in the southern sky with IceCube starting tracks	Sarah Mancina
The Next Generation of IceCube Real-time Neutrino Alerts	Chun Fai Tung
Search for High-Energy Neutrinos from Populations of Optical Transients	Robert Stein
Searching for Common Sources of Gravitational Waves and Neutrinos	Raamis Hussain
Ten years of multi-wavelength follow-up observations of ANTARES neutrino alerts	Damien Dornic
AMON: TeV Gamma and Neutrino Coincidence Alerts from HAWC and IceCube subthreshold data	Hugo Alberto Ayala Solares
IceCube as a Multi-messenger Follow-up Observatory for Astrophysical Transients	Justin Vandenbroucke
Search for neutrino counterparts of cataloged GW events from run O2 and offline follow-up of new GW alerts from run O3 with ANTARES	Marta Colomer Molla

Cosmic Ray Direct - CRD8

Precision Measurement of the Monthly Carbon and Oxygen Fluxes in Cosmic Rays with the Alpha Magnetic Spectrometer on the International Space Station	Federico Donnini
Properties of Primary Protons, Helium, Carbon and Oxygen Nuclei Measured with the Alpha Magnetic Spectrometer on the ISS	Qi Yan
Precision Measurement of the Daily Proton and Helium Fluxes in	Cristina Consolandi

Precision Measurement of the Monthly Proton and Helium Fluxes in Cosmic Rays with the Alpha Magnetic Spectrometer on the International Space Station	Nicola Tomassetti
Measurement of the Proton Spectrum with CALET on the ISS	Pier S. Marrocchesi
Measurement of the energy spectra of carbon and oxygen nuclei in cosmic rays with CALET	Paolo Maestro
Measurement of cosmic ray proton spectrum with the Dark Matter Particle Explorer	Chuan Yue
Helium spectrum in the cosmic rays measured by the DAMPE detector	Margherita Di Santo

Solar & Heliospheric - SH6

Penetrating Particle Analyzer (PAN)	Giorvani Ambrosi
Ground and flight performances of the balloon-borne magnet spectrometer AESOP-Lite	Pierre-Simon Mangeard
Measurement of the low energy (20-300 MeV) electron and positron spectra with the AESOP-Lite balloon mission	Sarah Mechbal
Space-Weather capabilities and preliminary results of the High Energy Particle Detector (HEPD) on-board the CSES satellite	Matteo Martucci
Energetic Particle Acceleration in the Heliosphere from the IMAP mission	Eric Christian
Solar Neutron and Gamma-ray Detector for a 3U CubeSat	Kazutaka Yamaoka
The updated and upgraded SANA neutron monitor	Du Toit Strauss

Wednesday, July 31st

Highlight Talks

Progresses of the Dark Matter Particle Explorer experiment	Qiang Yuan
Cosmogenic Evidences for Past SEP Events	Fusa Miyake

Neutrino - NU10

High-elevation synoptic radio array for detection of upward moving air-showers, deployed in the Antarctic mountains	Jiwoo Nam
GRAND: science and design	Olivier Martineau-Huynh
Trinity: An Air-Shower Imaging System for the Detection of Cosmogenic Neutrinos	Nepomuk Otte
SuperK-Gd: The Gd future of Super-Kamiokande	Lluís Martí Magro
Concept Study for the Beamforming Elevated Array for Cosmic Neutrinos (BEACON)	Stephanie Wissel

Cosmic Ray Indirect - CRI13

Seasonal Variation of Atmospheric Neutrinos in IceCube	Serap Tilav
Studying the Temporal Variation of the Cosmic-Ray Sun Shadow Using IceCube Data	Paolo Desiati
Probing the Anomalous Flux of Very-high-energy Gamma rays from the Sun with HAWC	Mehr Un Nisa
Measurement of the electrical properties of a thundercloud through muon imaging by the GRAPES-3 experiment	Hari Haran Balakrishnan

Cosmic Ray Indirect - CRI14

A Cosmic Rays Tracking System for the Stability Monitoring of Historical Buildings	Germano Bonomi
Improvement of cosmic-ray muography for Earth sciences and civil engineering	László Oláh
Measurement of the Energy Spectrum of Nearly Horizontal Muons with HAWC	Ahron S. Barber
EAS Thermal Neutron Detector Array to Add into LHAASO	Xinhua Ma
Observation of electron rings with imaging air Cherenkov telescopes	Haritha Retnakaran

Solar Energetic Particle Observations with the PAMELA Experiment	Alessandro Bruno
Re-examination of the First Five Ground-Level Events	M. A. Shea
A neutron monitor as an integral spectrometer for GLE analysis: Effective rigidity and reassessment of integral fluxes	Sergey Koldobskiy
Vertical Geomagnetic Cutoff Rigidities for Epoch 2015	D. F. Smart
Relativistic solar proton propagation in the interplanetary medium	Silvia Dalla
Usage of the global NM network for assessment of the radiation exposure at flight altitudes	Alexander Mishev

Gamma Ray Direct - GAD4

Cosmic Rays in the Orion-Eridanus Superbubble	Theo Joubaud
Detection of a gamma-ray halo around Geminga with the Fermi-LAT and implications for the positron flux	Silvia Manconi
The Surprising Gamma Ray emission from the Sun	Kenny C. Y. Ng
A Consistent Model of the Interstellar Gamma-Ray Emission to Interpret Fermi LAT Observations of Diffuse Emissions	Elena Orlando

Gamma Ray Indirect - GAI11

Search for Primordial Black Hole evaporations with H.E.S.S.	Thomas Tavernier
Measurement of the Extragalactic Background Light with VERITAS	Elisa Pueschel
Constraints on Lorentz invariance violation using HAWC observations above 100 TeV	Humberto Martínez-Huerta
A Systematic Search for TeV Halos associated with known pulsars	Andrew Smith
Positrons and 511 keV radiation as tracers of recent binary neutron star mergers	Volodymyr Takhistov
New stringent LIV limits from astrophysical gamma-ray sources	Rodrigo Guedes Lang

Cosmic Ray Indirect - CRI15

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Measurement of the fluctuations in the number of muons in inclined air showers with the Pierre Auger Observatory	Felix Riehn
Study on the muon lateral distribution based on the first stage of LHAASO-KM2A	Guangguang Xin
The muon component of extensive air showers above $10^{17.5}$ eV measured with the Pierre Auger Observatory	Federico Sánchez
Working Group Report on the Combined Analysis of Muon Density Measurements from Eight Leading Air Shower Experiments	Lorenzo Cazon
A study of the uncertainty due to hadron models on UHECR: the impact on the secondary particles	Moon Moon Devi
Spatial and Temporal Characteristics of EAS with Delayed Particles	Dmitriy Beznosko
Probing the High Energy Spectrum of Neutral Pions in Ultra-high-energy Proton-Air Interactions	Ruben Conceição

Neutrino - NU11

Enabling a New Detection Channel for BSM Physics with in-situ Measurements of Luminescence	Anna Pollmann
The Baikal-GVD neutrino telescope: muon track events reconstruction	Lukáš Fajt
Astrophysical Tau Neutrino Identification with IceCube Waveforms	Logan Wille
NU11d: Light diffusion in birefringent polycrystals and the IceCube ice anisotropy	Dmitry Chirkin
Exciting Prospects for Detecting Late-Time Neutrinos from Core-Collapse Supernovae	Shirley Li
Coherent radar reflections from an electron-beam induced particle cascade	Steven Prohira
Investigations of ice and emitter properties from radio signals recorded with ARIANNA	Robert Lahmann

Cosmic Ray Indirect - CRI16

The Large-scale Anisotropy of Cosmic Rays Observation with the Partial LHAASO-KM2A Arrays	Wei Gao
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The Anisotropy of CRs Observed by YBJ-HA Experiment	Yingying Guo
Observation of cosmic ray anisotropy with GRAPES-3 Experiment	Pravata Mohanty
The anisotropy of cosmic rays observed by the Tibet air shower array and muon detector array	Yoshiaki Nakamura
Particle-in-Cell Simulations of Relativistic Weibel Mediated Shocks Propagating into Inhomogeneous Media	Sara Tomita
Cosmic-Ray Transport between the Knee and the Ankle with CRPropa	Lukas Merten
Understanding the Linear and Nonlinear Effects of Cosmic Ray Streaming Instabilities with Self Consistent Hybrid Simulations	Colby Haggerty

Dark Matter - DM3

Dark Matter Searches with HAWC	Joseph Lundeen
Constraints on cross section and lifetime of dark matter with HAWC Observations of dwarf Irregular galaxies	Sergio Hernández Cadena
Setting Upper Limits on the Local Burst Rate Density of Primordial Black Holes Using HAWC	Kristi Engel
Search for dark photons as candidates for Dark Matter with FUNK	Ralph Engel
Searching for ultra-faint galaxies in three years of data from the Dark Energy Survey	Keith Bechtol
Voyager Probing Dark Matter	Mathieu Boudaud
Status of the Galactic Center Gamma-Ray and Cosmic-Ray Antiproton Excesses	Carlos Blanco
New Venues in Formation and Detection of Primordial Black Hole Dark Matter	Volodymyr Takhistov

Thursday, August 1st

Rapporteur Talks

Cosmic Ray Direct Observations	Roberta Sparvoli
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News on Cosmic-Ray Air Showers (CRI)	Frank Schroder
Solar and Heliospheric Physics	Silvia Dalla
Neutrinos	Alexander Kappes

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Europe/MoscowEnglish (United Kingdom)

XXXI International workshop on high energy physics "Critical points in the modern particle physics"

5 Jul 2017, 08:55 → 7 Jul 2017, 20:30 Europe/Moscow

NRC "Kurchatov Institute", SRC RF IHEP, Protvino

Nikolai Tyurin (Institute for High Energy Physics (RU)), Roman Riutin (Institute for High Energy Physics (RU)), Vladimir Petrov (Institute for High Energy Physics (RU))

Description National Research Centre "Kurchatov Institute" - Institute for High Energy Physics is organizing the XXXI-th International Workshop on High Energy Physics "Critical points in the modern particle physics", July 5-7, 2017, in Protvino, Moscow region, Russia.

The purpose of this Workshop is to exhibit a more complete and coherent picture of our understanding of the structure and dynamics of the microcosm, the megacosm and its evolution and the relationship between these two extremes of modern physics.

The Workshop covers both theory and experiment/observations in most actual and critical points.

We would like to promote, at the meeting, much more critical discussions than is usually the case. We strive to make the meeting not only informative but also to give it a truly working character with the aim to elaborate meaningful and clear conclusions about the actual state of affairs in the main areas of high-energy particle and astroparticle physics, gravitation and cosmology, with an emphasis on difficulties and unresolved problems.

To this end the meeting will be organized so that regular talks will be accompanied by discussions. The poster exhibition for brief actual notes is also envisaged.

Topics to discuss contain presumably *Higgs boson, hadron spectroscopy, heavy flavour physics, CP-violation, neutrino oscillations and the problem of neutrino mass, quark-gluon plasma and other exotic states of matter, QCD at short and large distances, astroparticle data from exploratory researches on dark matter, dark energy and black holes, early and present Universe, cosmic microwave background radiation, gravitation waves, progress in experimental and accelerator techniques.*

We believe that such a relatively wide scope of subjects for presentation and discussion will be also a good opportunity for participants to learn

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तेजपुर विश्वविद्यालय / TEZPUR UNIVERSITY

(केंद्रीय विश्वविद्यालय / A Central University)

कुल सचिव का कार्यालय / OFFICE OF THE REGISTRAR

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कुलाध्यक्ष का सर्वोत्तम विश्वविद्यालय पुरस्कार, 2016, एनआईआरएफ भारत रैंकिंग 05 :2016 और नाक द्वारा ए ग्रेड प्राप्त
Visitor's Best University Award, 2016, NIRF India Rankings 2016: 05 and accredited with NAAC 'A' grade

OFFICE ORDER

Dated: 08.05.2019

The University is pleased to accord permission to **Dr. Moon Moon Devi**, Assistant Professor, Department of Physics to attend the "36th International Cosmic Ray Conference" during 24th July- 1st August, 2019 at University of Wisconsin-Madison with a financial assistance of Rs. 1,00,000/- from the University.

Dr. Devi will apply for leave separately.

Issued with due approval.

Memo. No. F. 21-6/2012 (GA-I)/ 523 - A

Copy for information to:

1. Dean, School of Sciences
2. Head, Department of Physics.
3. Finance Officer.
4. Dr. Moon Moon Devi, Assistant Professor, Department of Physics
5. Hindi Officer, with a request to place the matter in the next meeting of BoM.
6. Secretary to the Vice-Chancellor for kind information of the Vice-Chancellor.
7. Personal File of Dr. Moon Moon Devi, Assistant Professor, Department of Physics
8. Concerned file.


Registrar

Dated: 08.05.2019


Registrar

XVI WORKSHOP ON HIGH ENERGY PHYSICS PHENOMENOLOGY
WHEPP 2019
DECEMBER 1-10, 2019



Certificate of Presentation

This is to certify that

Moon Moon Devi

*has participated and presented a talk in working group
III in the WHEPP XVI workshop held at Indian Institute
of Technology Guwahati, Assam, India*

Bipul Bhuyan

PROF. BIPUL BHUYAN
Convener

Debash

DR. DEBASISH BORAH
Joint Convener

तेजपुर विश्वविद्यालय / TEZPUR UNIVERSITY

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संकायाध्यक्ष का कार्यालय, शोध व विकास

OFFICE OF THE DEAN, RESEARCH & DEVELOPMENT

तेजपुर-784028 :: असम / TEZPUR-784028 :: ASSAM

OFFICE ORDER

Date: 17-01-2020

Permission is hereby accorded to **Dr. Moon Moon Devi**, Assistant Professor, Department of Physics, Tezpur to attend and deliver an invited talk in the XVI workshop on High Energy Physics Phenomenology at IIT, Guwahati during 01-10 December, 2019.

Dr. Moon Moon Devi is allowed to reimburse the TA/DA and registration fee from the UGC-SAP (DRS-II) programme, Department of Physics, Tezpur University subject to the availability of fund. The tour programme of Dr. Moon Moon Devi is also approved as per the financial rule of the Tezpur University.

Dr. Moon Moon Devi shall apply for appropriate leave separately.

-sd-

(N. Karak)

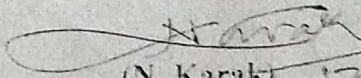
Dean, Research and Development

Memo No. DoRD/Phy/UGC-SAP-II/20-268/ 9/2-P

Date : 20/01/2020

Copy for information and necessary action to:

1. Dr. Moon Moon Devi, Assistant Professor, Department of Physics, Tezpur University.
2. Head, Department of Physics, Tezpur University.
3. Prof. A. Kumar, Coordinator, UGC-SAP (DRS-II) programme, Department of Physics, Tezpur University.
4. Finance Officer, Tezpur University.
5. Concerned file.


(N. Karak) 12/1/20
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