CURRICULUM VITAE

Name: Narendra Sahu

Gender: Male

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Current Affiliation: Professor, Department of Physics, Indian Institute of Technology Hyderabad, Kandi, Sangareddy 502285, Telengana , India.
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Ph.D.: Dept. of Physics, Indian Institute of Technology, Bombay, Powai, Mumbai – 400076, India, in 2005.
Supervisor: Prof. Urjit A Yajnik (yajnik@phy.iitb.ac.in)

Employment Records (past & present):

(1) Professor at the department of Physics, IIT Hyderabad since 18th July 2022.

(2) Associate professor at the Dept. of Physics, IIT Hyderabad from 23rd February 2017 to 17th July 2022.

(3) Assistant Professor at Dept. of Physics, IIT Hyderabad from 4th October 2011 to 22nd Feb 2017.

(4) Inter University Attraction Pole (IUAP) postdoctoral fellow at Physique Theorique, University Libre de Brussels, Boulevard du Triumph, Belgium, during 1st October 2009 to 30th September 2011.

(5) Marie-Curie Research fellow at Cosmology and Astroparticle Physics Group, Department of Physics, Lancaster University, Lancaster, UK, during October 2007 to September 2009.

(6) Postdoctoral fellow at Physical Research Laboratory, Ahmedabad, 380 009, India, during August 2005 to July 2007.

(7) Ph.D. from Department of Physics, Indian Institute of Technology, Bombay, Mumbai, India, in July 2005.

Citation summary from INSPIRE HEP (collected on 31/3/2023):

(1) h-index: 33 (published), 38 (including all papers)
(2) Total number of citations: 3082 (published), 5783 (including all papers)

All my papers can be found using the following link:

https://inspirehep.net/literature?sort=mostrecent&size=25&page=1&q=fin%20a%20narendra%20sahu&ui-citation-summary=true

Professional recognition/awards/ fellowships received:

(1) GATE fellowship from 2000 to 2005 in IIT Bombay.

(2) Visited theory division, CERN, switzerland, during 25th June to 30th July 2007.

(3) Visited theory division, Tata Institute of Fndamental research, Mumbai, India during 1st August to 30th September 2007.

(4) Marie-curie fellowship from October 2007 to September 2009 at Department of Physics, Lancaster University, Lancaster, UK.

(5) Visited department of physics, University of California, Riverside, USA, during 20th to 24th July 2009.

(6) IUAP fellowship from October 2009 to September 2011 at Service de Physique theorique, University Libre de Bruxelles, Brussels, Belgium.

(7) Visited theory group KEK Laboratory, Tsukuba, JAPAN, from 5th – 10th July 2013.

(8) Taught "Particle Physics and standard model" as a guest lecturer to Ph.D. students in preparatory SERC school held at the BITs-pilani Hyderabad campus, Hyderabad during June 2-28, 2014.

(9) Visited Service de Physique theorique, University Libre de Bruxelles, Brussels, Belgium from 27th September to 4th October 2014.

(10) Given lectures on "dark matter" to Ph.D. students at the winter school in High Energy Physics held at school of Physics, University of Hyderabad, during 6th –11th March 2017.

(11) Taught "Particle Physics and standard model" to Ph.D. students as a guest lecturer in DST-SERB preparatory school held at Tezpur University, Assam, during 14th October – 9th November 2019.

(12) DST fast track award in 2012.

(13) Guest Editor of Frontiers of Physics journal since Jan 2021.

Research interest: At present I am working on various aspects in the interface of particle physics and cosmology. As we know standard model (SM) of particle physics, which is based on the gauge group $SU(3)_c \times SU(2)_L \times U(1)_Y$, is the most successful one to explain the strong, electromagnetic and weak forces of nature. With the discovery of Higgs scalar at Compact Muon Solenoid (CMS) and at A Toroidal LHC ApparatuS (ATLAS) experiments at CERN-LHC the SM seems to be complete. However, it does not explain the tiny masses of the three active neutrinos for which we have strong experimental evidence. Moreover, it does not explain many other aspects which are related to the large scale structure of the observed Universe. In particular, some fundamental questions like "How observed matter is generated in a standard Big-Bang cosmology?", "What constitutes the dark matter and dark energy?" and so many of this list. We try to answer some of these questions by using current experimental evidences. For example, non-zero masses of the neutrinos, the origin of matter antimatter asymmetry, the particle physics candidate of dark matter and its direct, indirect and collider signature etc.

Courses Teaching at present:
EP-3130 (EP) [Mathematical Physics-I]
PH-5120 (M.Sc.) [Mathematical Methods-I]
EP-3208 (EP) [Advanced Mathematical Physics]
PH-6708 (M.Sc.) [Mathematical Physics-II]
Physics preparatory course.

Earlier courses taught:

PH-5277 (M.Sc.) [Relativistic Quantum Mechanics]
PH-5267 (M.Sc.) [Symmetries in Quantum Mechanics]
PH-5257 (M.Sc.) [Scattering Theory]
PH-5137 (M.Sc.) [Approximation methods in Quantum Mechanics]
PH-5127 (M.Sc.) [Hydrogenic atoms]
PH-5117 (M.Sc.) [Wave formalism of Quantum Mechanics]
EP-3277 (EP) [Relativistic Quantum Mechanics]
EP-3267 (EP) [Symmetries in Quantum Mechanics]
EP-3257(EP) [Scattering Theory]
EP-3237 (EP) [Approximation methods in Quantum Mechanics]
EP-3127 (EP) [Hydrogenic Atoms]
EP-3117 (EP) [Wave formalism of Quantum Mechanics]
EP-2017 (EP) [Relativity]
PH-6320 (M.Sc.) [Quantum Field Theory]
PH-7070 (Ph.D.) [Quantum Field Theory]
PH-1010 (B.Tech) [Physics-I]

Master thesis supervised:

S. No.	Student's Name	Passing out Year	Title of the master thesis
1	Saptashwa Bhattacharya (now postdoc at Vipava, Slovenia)	2012-2013	Relic abundance of Inert fermion doublet dark matter.
2	Pragati Mitra (now pursuing Ph.D. in VUB,	2013-2014	Dark Matter: The physics beyond the standard model

	Brussels, Belgium)		
3	Swagata Barma (Patent Associate at Agnik International Pvt. Ltd, Kolkata)	2013-2014	Massive Neutrinos: The physics beyond the standard model.
4	Chayan Majumdar (now pursuing Ph.D. in IIT Bombay, Mumbai, India)	2014-2015	Determination of possible mass range of dark matter in the inert scalar triplet model.
5	Supriya Senapati (now pursuing Ph.D. in IIT Bombay, Mumbai, India)	2014-2015	Neutrinoless double beta decay in see-saw mechanisms.
6	Sambo Sarkar (now pursuing Ph.D. in IIT Kharagpur, India)	2015-2016	Relic abundance of singlet-doublet fermion dark matter.
7	Shweta Dalal (now pursuing Ph.D. in Institut d' Astro physique de Paris, France	2015-2016	Scalar dark matter in the minimal extension of the standard model.
8	Shalini Ganguly (now pursuing Ph.D. in Belgium)	2016-2017	Triplet fermion as a viable candidate of dark matter
9	Anuprava Mandal (left Physics)	2016-2017	Higgs decay into two photons in the standard model
10	Akshat Jain	2017-2018	Neutrino Oscillations
11	Shivam Arora	2017-2018	Seesaw Mechanisms for generating non-zero neutrino masses
12	Akhila Kumar Pradhan(now pursuing Ph.D. at IIT Bombay)	2018-2019	Dark matter and its detection at terrestrial laboratories
13	Camelia Jana (now pursuing Ph.D. at IIT Guwahati)	2019-2020	Relics of WIMP dark matter and its detection
14	Rikteem Bhowmick (now working at Qulabs Software India Pvt Ltd, Hyderabad)	2020-2021	Dark Matter: Physics beyond the standard model of particle physics
15	Rahul Narang (Just graduated)	2021-2022	Indirect detection of dark matter in light of data from DAMPE and FERMI
16	Prasanta Das (just graduated)	2021-2022	Anomaly cancellation in abelian gauge extension of the standard model.
17	Prataya Chandra	2022-23	Exploring scalar singlet dark

			matter in beyond standard model scenario
18	Ritika Kalra	2022-23	Exploring singlet-doublet fermion dark matter in physics beyond the standard model

Ph.D. thesis supervised:

1	Nirakar Sahoo (Now postdoc at Utkal University, Bhubaneswar, India)	2013-2017	Study of particle physics models with Implication to neutrino mass and dark matter phenomenology in light of recent data
2	Nimmala Narendra (Now postdoc at PRL, Ahmedabad)	2014 - 2019	Dark Matter Assisted Leptogenesis and Neutrino Mass in Light of Current Experimental Bounds
3	Manoranjan Dutta (Now postdoc at IIT Hyderabad)	2018-2021	Phenomenological study of self-interacting dark matter in connection to neutrino mass
4	Satyabrata Mahapatra (completing in Sep 2022)	2018-2022	Phenomenological study of abelian gauge extensions of the standard model in light of neutrino mass, dark matter and (g-2) anomalies

Ph.D.Students working at present:

(1) Sujit Kumar Sahoo (Joined in 2021)
(2) Vicky Singh Thounaojam (joined in 2022)
(3) Partha Kumar Paul (joined in 2022)

M.Sc./B.Tech. students working at present:

(1) **Arkadeb Ghosh (Master student)**

List of Publications:

A. Journal Contributions:

(1)(5) Satyabrata Mahapatra, Rabindra N. Mohapatra and **Narendra Sahu**, "Gauged $L_e - L_\mu - L_\tau$ symmetry, fourth generation, neutrino mass and dark matter", phys. Lett. B843, 138011 (2023). [arXiv: 2302.01784] [IF=4.95]

(2) Debasish Borah, Satyabrata Mahapatra, Dibyendu Nanda and **Narendra Sahu**, "Type-II Dirac seesaw with observable ΔN_{eff} in the light of W-mass anomaly", Phys. Lett. B833 (2022), 137297 [2204.08266] [IF=4.95]

(3) Debasish Borah, Satyabrata Mahapatra, and **Narendra Sahu**, "Singlet-Doublet fermion origin of dark matter, neutrino mass and W-mass anomaly", Phys. Lett. B831 (2022), 137196 [2204.09671] [IF=4.95]

(4) Manoranjan Dutta, Nimmala Narendra, **Narendra Sahu** and Sujay Shil, "Asymmetric self-interacting dark matter via Dirac leptogenesis", Phys. Rev. D106, (2022), 9 (095017) [arXiv: 2202. 04704 [hep-ph]. {IF=5.407]

(5) Debasish Borah, Arnab Dasgupta, Satyabrata Mahapatra, **Narendra Sahu**, "Unified origin of dark matter self-interaction and low scale leptogenesis", Phys. Rev. D 106 (2022), 9, 095028 [arXiv: 2112.14786 (hep-ph)] [IF=5.407]

(6) Purusottam Ghosh, Satyabrata Mahapatra, Nimmala Narendra and Narendra Sahu, "TeV scale modified Type-II seesaw mechanism and dark matter in a gauged U(1)_{B-L} symmetric model", Phys. Rev.D. 106(2022), 1, 015001, arXiv: 2107.11951 {IF=4.407]

(7) Debasish Borah, Manoranjan Dutta, Satyabrata Mahapatra, and **Narendra Sahu**, "Boosted self-interacting dark matter and XENON1T excess", Nucl. Phys. B 979 (2022), 115787 [arXiv: 2107.13176]. {IF=3.045]

(8) Debasish Borah, Manoranjan Dutta, Satyabrata Mahapatra, and **Narendra Sahu**, "Singlet-doublet self-interacting dark matter and radiative neutrino mass", Phys. Rev. D 105 (2022), 075019 [arXiv: 2112. 06847]. [IF=5.407]

(9) Debasish Borah, Manoranjan Dutta, Satyabrata Mahapatra, and **Narendra Sahu,** "Self-interacting dark matter via right-handed neutrino portal", Phys. Rev.D 105, 1, 015004, 2022 [arXiv: 2110.00021] [IF=5.407]

(10) Debasish Borah, Manoranjan Dutta, Satyabrata Mahapatra, and **Narendra Sahu,** "Lepton anomalous magnetic moment with singlet-doublet fermion dark matter in a scotogenic $U(1)_{L_\mu - L_\tau}$model", Phys. Rev.D 105, 1, 015029, 2022 [arXiv: 2109.02699] [IF=5.407]

(11) Debasish Borah, Manoranjan Dutta, Satyabrata Mahapatra, and **Narendra Sahu,** "Muon (g-2) and XENON1T excess with boosted dark matter in $L_\mu - L_\tau$ model", Phys. Lett.B 820, 136577 (2021), [2104.05656]. [4.95]

(12) Nimmala Narendra, **Narendra Sahu** and Sujay Shil, "Dark matter to baryon ratio from scalar triplets decay in type-II seesaw", Eur, Phys. J.C. 81 (2021) 12, 1098 [arXiv: 1910. 12762 [hep-ph].

(13) Manoranjan Dutta, Debasish Borah, Satyabrata Mahapatra, and Narendra Sahu, "Self-interacting inelastic Dark matter in light of XENON1T excess", Phys.Rev.D. 103, 095018, 2021, [arXiv: 2101. 06472]

(14) Debasish Borah, Satyabrata Mahapatra, and Narendra Sahu, "Connecting low scale seesaw for neutrino mass to inelastic sub-GeV dark matter with abelian gauge symmetry", Nucl.Phys.B 968, 115407, 2021.

(15) Manoranjan Dutta, Subhaditya Bhattacharya, Purusottam Ghosh, Narendra Sahu, "Singlet-Doublet Majorana dark matter and neutrino mass in a minimal type-I seesaw scenario", JCAP03, 008, 2021

(16) Debasish Borah, Satyabrata Mahapatra, Dibyendu Nanda and Narendra, "Inelastic fermion dark matter origin of XENON1T excess with muon (g-2) and light neutrino mass", Phys.Lett.B 811, 135933, 2020.

(17) Nimmala Narendra, Narendra Sahu and S Uma Sankar, "Flavoured CP asymmetry at the effective neutrino mass floor", Nulc.Phys.B 962, 115268, 2021, [arXiv: 2002.08753].

(18) Debasish Borah, Dibyendu Nanda, Nimmala Narendra and **Narendra Sahu**, "Right-handed neutrino dark matter with radiative neutrino mass in gauged B-L model", arXiv: 1810.12920[hep-ph], Nucl.Phys.B950, 114841,2020.

(19) Basabendu Barman, Subhaditya Bhattacharya, Purusottam Ghosh, Saurav Kadam and Narendra Sahu, "Fermion dark matter with scalar triplet at direct and collider searches", Phy. ReV. D100, 015027, 2019[arXiv: 1902.01217].

(20) Subhaditya Bhattacharya, Purusottam Ghosh, Nirakar Sahoo and **Narendra Sahu**, "A mini review on vector-like leptonic dark matter, neutrino mass and collider signatures", Front.in Phys.7 (2019) 80 [arXiv: 1812.06505].

(21) Subhaditya Bhattacharya, Purussotam Ghosh and **Narendra Sahu**, "Multi-partite dark matter with scalars, fermions and signatures at LHC", JHEP1902 (2019), 059 [arXiv: 1809.07474]

(21) Nimmala Narendra, Nirakar Sahoo and **Narendra Sahu**, "Dark matter assisted Dirac leptogenesis and neutrino mass", Nucl. Phys. B936, 2018, 76-90, [arXiv: 1712.02960[hep-ph]].

(22) Nimmala Narendra, Sudhanwa Patra, **Narendra Sahu** and Sujay Shil, "Baryogenesis via leptogenesis from asymmetric dark matter and radiatively generated neutrino mass", Phys. Rev.D98 (2018), 095016, [arXiv: 1805.04860[hep-ph]]

(23) Subhaditya Bhattacharya, Nirakar Sahoo and **Narendra Sahu**, "Singlet-Doublet fermion dark matter, Neutrino mass and collider signatures", [arXiv: 1704.03417], Phys. ReV.D 96, (2017), 035010.

(24) Subhaditya Bhattacharya, Biswajit Karmakar, **Narendra Sahu** and Arunansu Sil, "Flavor origin of dark matter and its relation with leptonic nonzero θ_{13} and Dirac CP phase δ", [arXiv: 1611.07419], JHEP, 1705 (2017) 068.

(25) Sudhanwa Patra, Soumya Rao, Nirakar Sahoo and **Narendra Sahu**, "Gauged $U(1)_{L_\mu - L_\tau}$ model in light of muon g-2 anomaly, neutrino mass and dark matter phenomenology", [arXiv: 1607.04046], Nucl. Phys.B917 (2017), 317-336.

(26) Subhaditya Bhattacharya, Nirakar Sahoo and **Narendra Sahu**, "Minimal vector-like leptonic dark matter and the signatures at the LHC", [arXiv: 1510. 02760]. Phys. ReV.D93 (2016), 115040.

(27) Subhaditya Bhattacharya, Biswajit Karmakar, **Narendra Sahu** and Arunansu Sil, "Unifying the flavor origin of dark matter with leptonic non-zero θ_{13}", [arXiv: 1603.04776], Phys. ReV.D93 (2016), 115041.

(28) Subhditya Bhattacharya, Sudhanwa Patra, Nirakar Sahoo, **Narendra Sahu**, "750 GeV Di-photon excess at CERN LHC from a Dark Sector Assisted Scalar Decay", [arXiv: 1601.02984], JCAP 1606 (2016), 010.

(29) Frank F. Deppisch, Lukas Graf, Suchita Kulkarni, Sudhanwa Patra, Werner Rodejohann, **Narendra Sahu**, Utpal Sarkar, "Reconciling the 2 TeV excesses at the LHC in a linear seesaw left-right model", [arXiv: 1508.05940], Phys. ReV.D93 (2016), 013011.

(30) Sudhanwa Patra, Nirakar Sahoo and **Narendra Sahu**, "Dipolar dark matter in light of 3.5 keV X-ray line, Neutrino mass and dark matter", [arXiv: 1412.4253], Phys. ReV.D91 (2015), 115013.

(31) Frank F. Deppisch, Tomas E. Gonzalo, Sudhanwa Patra, **Narendra Sahu** and Utpal Sarkar, "Double beta decay, lepton flavor violation and collider signatures of left-right symmetric models with spontaneous D-parity breaking", [arXiv: 1410.6427], Phys. Rev. D 91 (2015) , 015018.

(32) Frank F. Deppisch, Tomas E. Gonzalo, Sudhanwa Patra, **Narendra Sahu**, Utpal Sarkar, "Signal of right-handed charged bosons at the LHC ?", [arXiv: 1407.5384], Phys. Rev. D90 (2014), 053014.

(33) Arindam Chatterjee and **Narendra Sahu**, "Resurrecting sneutrino Dark matter in light of neutrino mass and LUX data", [arXiv: 1407.3030], Phys.ReV.D 90(2014), 095021.

(34) Rupak Dutta, Upendra Ch, Anjan K. giri and **Narendra Sahu**, "Perturbative Bottom-up approach for neutrino mass matrix in light of large theta_{13} and Role of Lightest Neutrino mass", [arXiv: 1303.3357]; Int. J. Mod. Phys A 29, (2014), 1450113.

(35) Kazunori Kohri and **Narendra Sahu**, "Constraining the cogenesis of visible and dark matter with AMS-02 and Xenon-100'', [arXiv: 1306.5629], Phys. Rev. D 88 (2013), 103001.

(36) Chiara Arina, Rabindra N. Mohapatra and **Narendra Sahu**, "Co-Genesis of Matter and Dark Matter with vector-like fourth generation Leptons", [arXiv: 1211.0435], Phys. Lett. B720 (2013), 130-136.

(37) Chiara Arina, Jinn-Ouk Gong and **Narendra Sahu**, "Unifying darko-lepto-genesis with scalar triplet Inflation", [arXiv: 1206.0009], Nucl. Phys. B 865 (2012) 430-460**.**

(38) Chiara Arina and **Narendra Sahu**, "Asymmetric inelastic Inert doublet dark matter from Triplet Scalar Leptogenesis", Nucl. Phys.B854 (2012), 666-699.

(39) Swarup Kumar Majee and **Narendra Sahu**, 'Dilepton Signal of a Type-II seesaw at CERN LHC: Reveals a TeV scale B-L Symmetry, arXiv:1004.0841 [hep-ph]. Phys. Rev. D82 (2010), 053007 .

(40) Chiara Arina, Francois-Xavier Josse-Michaux and **Narendra Sahu**, 'A Tight Connection Between Direct and Indirect Detection of dark Matter through Higgs Portal Couplings to a Hidden Sector', arXiv: 1004.3953[hep-ph]. Phys. Rev. D82 (2010), 015005.

(41) Chiara Arina, Francois-Xavier Josse-Michaux and **Narendra Sahu**, 'Constraining Sommerfeld Enhanced Annihilation Cross-sections of Dark Matter via Direct Searches', arXiv:1004.0645[hep-ph], Phys. Lett. B691 (2010), 219-224.

(42) Kazunori Kohri, Anupam Mazumdar and **Narendra Sahu**, 'Inflation, baryogenesis and gravitino dark matter at ultra low reheat temperatures', arXiv:0905.1625 [hep-ph], Phys. Rev.D80 (2009), 103504.

(43) Kazunori Kohri, John McDonald and **Narendra Sahu**, ''Cosmic Ray Anomalies and Dark Matter Annihilation to Muons via a Higgs Portal Hidden Sector'', arXiv:0905.1312 [hep-ph], Phys. Rev. D81 (2010), 023530.

(44) Kazunori Kohri, Anupam Mazumdar, **Narendra Sahu** and Philip Stephens, 'Probing Unified Origin of Dark Matter and Baryon Asymmetry at PAMELA/Fermi', arXiv:0907.0622 [hep-ph], Phys. Rev. D80 (2009), 061302, [Rapid communication].

(45) Csaba Balazs, **Narendra Sahu** and Anupam Mazumdar, Absolute electron and positron fluxes from PAMELA/Fermi and Dark Matter, arXiv:0905.4302 [hep-ph], JCAP 0907 (2009), 039.

(46) Raghavan Rangarajan and **Narendra Sahu,** "Perturbative Reheating and Gravitino Production in inflationary models", arXiv: 0811.1866[hep-ph], Phys. Rev. **D79 (2009),** 103534.

(47) John McDonald and **Narendra Sahu**, "keV Warm Dark Matter via the Supersymmetric Higgs Portal", arXiv: 0809.0247[hep-ph], Phys. Rev. **D79** (2009), 103523.

(48) **Narendra Sahu** and Utpal Sarkar, "Extended Zee Model for Neutrino Mass, Leptogenesis and Sterile Neutrino like Dark Matter", arXiv:0804.2072[hep-ph], Phys. Rev. **D78** (2008), 115013.

(49) John McDonald and **Narendra Sahu**, "Z_2 Singlino Dark Matter in a Portal –Like Extension of the Minimal Supersymmetric Standard Model, arXiv:0802.3847 [hep-ph], JCAP 0806 (2008), 026 .

(50) John McDonald, **Narendra Sahu** and Utpal Sarkar, "Type-II Seesaw at Collider, Lepton Asymmetry and Singlet Scalar Dark Matter" arXiv:0711.4820 [hep-ph], JCAP 0804 (2008), 037.

(51) Jinn-Ouk Gong and **Narendra Sahu**, "Inflation in minimal left-right symmetric model with spontaneous D-parity breaking", arXiv: 0705.0068[hep-ph], Phys.Rev.**D77** (2008), 023517.

(52) Raghavan Rangarajan and **Narendra Sahu**, "Gravitino production in an inflationary Universe and implication for leptogenesis" [arXiv:hep-ph/0606228], Mod.Phys.Lett.**A23** (2008), 427-436.

(53) **Narendra Sahu** and Utpal Sarkar, "Predictive model for dark matter, dark energy, neutrino masses and leptogenesis at the TeV scale", [arXiv: hep-ph/0701062], Phy. Rev. **D76** (2007), 045014.

(54) Ernest Ma, **Narendra Sahu** and Utpal Sarkar, "Low-Energy Thermal Leptogenesis in an Extended NMSSM Model", [arXiv: hep-ph/0611257], J. Phys. G34 (2007), 741-752.

(55) **Narendra Sahu** and Utpal Sarkar, "Leptogenesis bound on neutrino masses in left-right symmetric models with spontaneous D-parity violation", [arXiv:hep-ph/0605007], Phys. Rev. D**74 (2006),** 093002.

(56) Kaushik Bhattacharya, **Narendra Sahu**, Utpal Sarkar and Santosh K. Singh, "Leptogenesis and low energy CP phases with two heavy neutrinos", [arXiv: hep-ph/0607272], Phys. Rev. D**74** (2006), 093001.

(57) Ernest Ma, **Narendra Sahu** and Utpal Sarkar, "Leptogenesis below the Davidson and Ibarra bound", [arXiv hep-ph/0603043], J. Phys. G32 (2006), L65-L68.

(58) **Narendra Sahu**, Pijushpani Bhattacharjee and Urjit A Yajnik, "Baryogenesis via leptogenesis in presence of cosmic strings", [arXiv: hep-ph/0512350], Nucl. Phys. B752 (2006), 280-296.

(59) **Narendra Sahu** and Urjit A Yajnik, "Dark matter and leptogenesis in gauged B-L symmetric models embedding NuMSM" , [arXiv: hep-ph/0509285], Phys. Lett. B635 (2006), 11-16.

(60) **Narendra Sahu** and S. Uma Sankar, "Heavy neutrino mass hierarchy from Leptogenesis in left-right symmetric models with spontaneous CP-violation", [arXiv:hep-ph/0501069], Nucl. Phy. B. 724 (2005), 329.

(61) **Narendra Sahu** and Urjit. A Yajnik, "Gauged B-L symmetry and Baryogenesis via leptogenesis at TeV scale", Phys. Rev.D **71** (2005) 023507.

(62) **Narendra Sahu** and S. Uma Sankar, "Bounds on neutrino masses from leptogenesis in type-II see-saw models", Phys. Rev. D **71** (2005),013006.

(63) Pijushpani Bhattacharjee, **Narendra Sahu** and Urjit A Yajnik, " B-L Cosmic strings and Baryogenesis", Phys. Rev.D **70** (2004), 083534.

(64) **Narendra Sahu** and Urjit A Yajnik, "Quantum mechanical stability of fermion-soliton systems" Phys. Lett. B **596** (2004) 1-7.

<u>International Journal papers with DUNE collaboration (Narendra Sahu is currently a member of DUNE collaboration)</u>

S. No.	Authors	Title	Name of Journal	Volume	Page	Year
1	A.Abed Abud	Highly	JINST	18	P04034	2023

	et.al. [DUNE collaboration]	parallelized simulation of a pixelated LArTPC on a GPU				
2	A.Abed Abud et.al. [DUNE collaboration]	Identification and Reconstruction of low energy electrons in the proto-DUNE SP-detector	Phys. Rev. D	107	092012	2023
3	A. Abed | Abud et.al. [DUNE collaboration]	Separation of track- and shower-like energy deposits in ProtoDUNE-SP using a convolutional neural network.	Eur. Phys. J.C	82	10,903	2022
4	A. Abed | Abud et.al. [DUNE collaboration	Scintilation light detection in the 6-m drift length ProtoDUNE Dual phase liquid argon TPC	Eur. Phys. J.C	82	7.618	2022
5	A. Abed | Abud et.al. [DUNE collaboration	Low exposure long-baseline neutrino oscillation sensitivity of the DUNE - experiment.	Phys. Rev. D`	105	072006	2022
6	A. Abed | Abud et.al. [DUNE	Design, Construction and operation of the proto	JINST	17	01,P01005	2022

	collaboration]	DUNE-SP liquid Argon TPC				
7	A. Abed Abud et.al. [DUNE collaboration]	Searching for solar KDAR with DUNE	JCAP	10	065	2021
8	A. Abed Abud et.al. [DUNE collaboration]	Deep Underground Neutrino Experiment (DUNE) near detector conceptual design report	Instruments	5	4,31	2021
9.	**B.** Abi et.al [DUNE collaboration]	Supernovae burst detection with the deep underground neutrino experiment	Euro. Phys. Jour. C	81	5,423	2021
10.	B. Abi et.al. [DUNE collaboration]	Prospectus for beyond the SM physics searches at the Deep undergo neutrino experiment	Euro.Physics, Jour.C	81	4,322	2021
11.	B. Abi et.al. [DUNE collaboration]	First results on protoDUNE-SP liquid argon time projection chamber performance from a beam test at the CERN neutrino platform	JINST	15	12,P12004	2020

12	K. Ackley et.al. [DUNE collaboration]	Neutron star extreme matter observatory: A kilo Hertz-band gravitational wave detector in the global network	Publ.Astron.Soc.Australasian	37	E047	2020
13	B. Abi et.al. [DUNE collaboration]	Neutrino interaction classification with a convolutional neural network in the DUNE far detector	Phy.Rev. D	102	092003	2020
14	B. Abi et.al. [DUNE collaboration]	Long baseline neutrino oscillation physics potential of the DUNE experiment	Euro.Phys.Jour.C	80	10,978	2020
15.	B. Abi et.al. [DUNE collaboration]	DUNE far detector technical design report, vol-IV: Far detector single phase technology	JINST	15	08, T08010	2020
16.	B. Abi et.al. [DUNE collaboration]	DUNE-far detector technical design report, Vol-I: Introduction to DUNE	JINST	15	08,T08008	2020

17.	B. Abi et.al. [DUNE collaboration]	DUNE-far detector technical design report, Vol-III: DUNE far detector technical coordination	JINST	15	08,T08009	2020

B. Papers in arXiv:

(1) Amol Dighe and **Narendra Sahu**, "Texture Zeros and discrete flavor symmetries in neutrino and inverse neutrino mass matrices: A bottom-up approach", arXiv: 0812.0695 [hep-ph].

(2) Germano Nardini and **Narendra Sahu**, "Re-reheating, Late entropy injection and constraints from baryogenesis scenarios", arXiv:1109.2829[hep-ph].

(3) Satyabrata Mahapatra, Nimmala Narendra and Narendra Sahu, "Verifiable type-II seesaw and dark matter in a gauged U(1)_{B-L} model", arXiv: 2002.07000 [hep-ph].
(4) Debasish Borah, Satyabrata Mahapatra and Narendra Sahu, "Minimal realization of light thermal self-interacting dark matter", [arXiv: 2211.15703]

C**. Popular Article**

(1) Kumar Rao, **Narendra Sahu** and Prasanta K. Panigrahi, "Fermion Number Fractionization", arXiv:0709.3248[physics], Resonance, J. Sci.Edu.13:738-751,2008.

Conference Talks (Invited/contributed)/Seminars:

(1) “Unification with vector-like fermion dark matter and possible signatures”, invited talk given at the international conference “Advances in Astroparticle physics and Cosmology (AAPCOS-2020), held at Saha Institute of Nuclear Physics, Kolkata during January 6 – 10, 2020.

(2) “Vector-like leptonic dark matter, neutrino mass and collider signatures”, parallel session talk given at the international conference “FLASY 2019” held at Shanghai Jiao-Tung University, Shanghai, China, during 22 -27th July 2019.

(3) “Vector-like leptonic dark matter, neutrino mass and collider signatures”, parallel session talk given at the international conference “PASCOS 2019” held at Manchester, UK, during 1 – 5th July 2019.

(4) “Vector-like fermion dark matter and its probe at terrestrial laboratories, invited talk given at the department of Physics, HCU, on 24th Jan 2019.

(5) “Darko-lepto-genesis for dark matter and baryon asymmetry of the Universe”, invited seminar delivered at IOP, Bhubaneswar, INDIA, on 24th May 2018.

(6) “Dark matter: From cosmos to collider”, invited seminar given at IIT Ropar, Punjab, India on 9th January 2018.

(7) “Exotic models of neutrino mass and dark matter”, invited review talk given at WHEPP 2017, held at IISER, Bhopal, India, during 14-23 December 2017.

(8) “Dark matter assisted Dirac leptogenesis and neutrino mass” talk given in a parallel session at SUSY 2017, held during 11th – 15th December 2017 at TIFR Mumbai, India.

(9) “Singlet-Doublet fermion dark matter, neutrino mass and collider signatures”, invited seminar given at IOP, Bhubaneswar, India on 25th May 2017.

(10) “Mixed fermion DM, neutrino mass and collider signatures”, invited seminar given in the theory division, Physical research laboratory, Ahmedabad, India during a visit from 24th December 2016 to 1st January 2017.

(11) “Mixed fermion dark matter, neutrino mass and collider signatures” talk given in a national conference “Looking for Beyond SM physics”, held at CHEP, IISc Bangalore during 20^{th} – 22^{nd} December 2016.

(12) “Mixed dark matter and detection perspective”, talk given in a Indo-US workshop “The Invisible sector”, held at University of Hyderabad during 16^{th} – 18^{th} November 2016.

(13) “Vector-like leptonic dark matter and its signature at LHC”, parallel session talk given in a conference “TeV Particle Astrophysics 2016”, held at CERN, Switzerland, during 12^{th} –16^{th} September 2016.

(14) “Vector-like leptonic dark matter and its signature at LHC”, invited talk given in a conference “Frontiers in High energy physics 2016”, held at IMSc. Chennai, during 22^{nd} – 25^{th} March 2016.

(15) “Dark matter: From cosmos to collider”, invited talk given in a national seminar “Advances in astroparticle physics”, held at School of physics, Sambalpur University, Odissa, during 19^{th} -20^{th} Feb. 2016.

(16) “Vector-like fermion dark matter: From cosmos to collider”, invited seminar given in the department of physics, IIT Guwahati, on 20^{th} Jan 2016.

(17) “vector-like leptonic dark matter and collider signatures”, invited talk given in a conference “Recent trends in Astro-particle and particle physics” held at CHEP, IISc Bangalore, during $(11\text{-}12)^{th}$ October 2015.

(18) “Invisible matters in light of PLANCK data”, invited talk presented at “School of Physics, University of Hyderabad”, during 26-28 Feb. 2015.

(19) “Inert Fermion Doublet Dark matter in light of neutrino mass and LUX data”, invited talk presented at “LHC & DARK MATTER”, held at IACS, Kolkata, India, during 9^{th} -28^{th} of Feb 2015.

(20) “Inert scalar and fermion doublet dark matters in light of neutrino mass and LUX data”, seminar given at University Libre de Brussels on 3^{rd} October 2014.

(21) “Resurrecting left-handed sneutrino dark matter in light of neutrino mass and LUX data”, contributory talk presented at “DESY Theory workshop” held at DESY, Hamburg, Germany during 23^{rd} to 26^{th} of September 2014.

(22) " Some models of Dark matter", Invited talk presented at "13th Workshop on High Energy Physics Phenomenology (WHEPP-13)", held at Puri, Odisha, India during Dec 12-21, 2013.

(23) "Asymmetric dark matter in light of Higgs-like signature at LHC", Invited talk presented at "SUSY and DM" held at CHEP, IISc Bangalore, during 3rd -5th October 2013.

(24) "Darko-Lepto-Genesis in light of 125 GeV Higgs", Invited talk presented at "FLASY 2013" held at Nigata Japan during 1-5th July 2013.

(25) "Darko-Lepto-Genesis in light of 125 GeV Higgs", Invited talk presented at "HiggsTop 2013" held at GOA, India during Feb. 25th to 27th 2013.

(26) "Unifying Asymmetric Inert fermion doublet dark matter and Leptogenesis with Neutrino mass", [arXiv: 1212.3951], presented at Recontres du Vietnam International conference "Beyond the standard model of particle physics', held at QuyNhon, Vietnam, during July 15-21, 2012.

(27) "Common origin of asymmetric inert doublet dark matter and leptogenesis", presented at "Scalars 2011", held during 26th August to 29th August 2011, Warsaw, Poland and at "International Workshop on High Energy Physics and Phenomenology XII (WHEPP-12), held at Mahabaleswar, India during 2nd Jan 2012 to 15th Jan 2012.

(28) ''Searching hidden sector dark matter via Higgs Portal", presented at "GDR TeraScale@Brussels", held during 3rd November to 5th November 2010, at University Libre de Brussels, Belgium.

(29) ''Absolute electron and positron fluxes from PAMELA/Fermi and dark matter", presented at "Annual meeting of the Institute of Particle Physics Astroparticle Physics Group", held during 8th June to 9th June 2009, at Edinburgh, UK.

(30) 'Symmetries in neutrino mass matrix: A bottom-up approach', in "Aspects of Neutrinos", held during 8th April 2009 to 15th April 2009, at Goa, India.

(31) 'Gauge Singlet Dark Matter and ATIC/PAMELA electron and positron excesses', in "EnTApP Dark Matter workshop 2009", held during 2nd February to 6th February 2009, at CERN, Geneva, Switzerland.

(32) "Natural keV Warm Dark Matter via the Supersymmetric Higgs Portal and Small Scale Structures", presented at UK Cosmology meeting held at Manchester University, UK from 15th of September 2008 to 17th of September 2008.

(33) "Inflation in Minimal Left-Right Symmetric Model with Spontaneous D-parity Breaking", presented at UK Cosmology Meeting held at UCL, London, UK on 28th of November 2007.

(34) "TeV Scale Model for Neutrino Masses, Dark Matter and Leptogenesis", AIP, Conf. Proc. 939: 294-297, 2007, presented at International Workshop on Theoretical High Energy Physics(IWTHEP), held at Indian Institute of Technology, Roorkee, India, during 15th March to 20th March, 2007; LHC-Cosmology Interplay, held at Theory Division, CERN, Switzerland, during 25th June to 10th August 2007; Workshop on Grand Unification and Proton Decay, held at International Center for Theoretical Physics (ICTP), Italy, during 22nd July to 26th July 2007.

(35) "Thermal leptogenesis below the Davidson-Ibarra Bound in an extended NMSSM model", presented at DAE-BRNS symposium on High Energy Physics, held at Indian Institute of Technology, Kharagpur, India, during Dec – 11 to Dec-15, (2006) and Joint Indo-German school and workshop (JIGSAW) on Neutrinos in Physics, Astrophysics and Cosmology, held at Tata Institute of Fundamental Research, Mumbai, India, during 12th Feb to 23rd Feb-2007.

(36) "Connecting leptogenesis with low energy CP phases in two right handed neutrino models", presented at DAE-BRNS symposium on High Energy Physics, held at Indian Institute of Technology, Kharagpur, India, during Dec – 11 to Dec-15, (2006).

(37) "Leptogenesis in left-right symmetric models through spontaneous CP violation", presented at the workshop on theoretical physics held at IIT Roorkee, India, during 16th-20th Mar-2005 and Eighth European meeting "From the Planck scale to the electroweak scale" held at Abdus Salam International Center for Theoretical Physics, during 23rd to 28th May-2005.

(38) Srubabati Goswami et.al, Pramana 63, 1391 (2004), [arXiv: hep-ph/0409225] "Working Group Report: Neutrino and astroparticle physics, WHEPP-8, held at Indian Institute of Technology, Bombay, India, during January 5-16, 2004.

(39) "Upper bound on CP-asymmetry in type-II see-saw models" presented at DAE-BRNS symposium on High Energy Physics, held at Saha Institute of Nuclear Physics, Calcutta, India, during Nov-29 to Dec-3, 2004.

(40) "Cosmic gamma ray background, matter anti-matter asymmetry and bound on neutrino mass" presented at DAE-BRNS symposium on High Energy Physics, held at Saha Institute of Nuclear Physics, Calcutta, India, during Nov-29 to Dec-3, 2004.

Funded Project:

(1) DST fast track project "Asymmetric Dark Matter (DM) and its probe at ongoing and future DM search experiments" implemented during May 2013 to Jan 2017. Funded amount Rs. 13,80, 000.
(2) DAE-BRNS project "Towards a unified theory of dark matter (DM), neutrino mass and matter antimatter asymmetry of the Universe", during 2021-2024. Funded amount Rs. 19,42,600.

Schools & conferences organized:

(1) Organized a national conference "Invisible matters: Neutrino and dark matter", during 29th – 31st October 2014.
(2) Working group convener in Astroparticle and cosmology session in "WHEPP-2015", held at IIT Kanpur during 4-13th December 2015.

(3) Local organizing committee member of international conference "FPCP-2018" held at IIT Hyderabad during 14 -18 July 2018.

(4) Local organizing committee member of international workshop on frontiers in high energy physics (FHEP -2019), jointly organized by IIT Hyderabad and Hyderabad Central University (HCU) during 14 -14 October 2019.

(5) Local organizing committee member of international conference "Anomalies 2021" , held at IIT Hyderabad during 10 -12 November 2021.

International Collaboration:

Member of DUNE (Deep Underground Neutrino Experiment).

Service to the scientific community

(1) Referee of Physical Review D., Physical review Letter and Europian Physics Journal C. Phys. Lett. B
(2) Refereed about 10 Ph.D. theses.