CURRICULUM VITAE (Update: 25/10/2024)

PERSONAL DETAILS

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CSIR-NET-JRF (together with Lecturer-ship) Qualified in Physics: Roll no. **63665** (25/05/1998)

EDUCATION

1992 - 1995	*B.Sc. Physics*, **Jadavpur University**, India – 1st Class Distinction
1995 - 1997	*M.Sc. High Energy Particle Physics*, **Jadavpur University**, India – 1st Class with high university ranking
1999 - 2005	*Ph.D., Thesis title* -- **Search for SUSY at Collider: a Phenomenological Study**, **Jadavpur University**

SUMMARY OF ACADEMIC SKILLS AND COMPETENCIES

- A High Energy Particle Phenomenologist – prestigious research and academic positions in Europe (Germany and Spain), Latin America (Mexico, Colombia and Guatemala) and India.

- Participation and delivery of research lectures in International Workshops, Conferences, Seminars and Universities in Europe (Germany,Spain and France), Asia (South Korea, Japan and India) and Americas (USA, Mexico, Colombia, Ecuador and Guatemala).

- Work experience in many diverse topics - Light Top-Squark Scenario, Neutrino Mass Model, Tri-linear & Bi-linear R-parity Violation, Left-Right symmetry, Flavor Violation, CP-Violation, Non-universal Gaugino Mass Model, Generic Two Higgs Doublet Model (2HDM), Higgs Boson Decays and Next-to-Minimal Supersymmetric Standard Model (NMSSM).

- Proficient in Monte Carlo simulations (Pythia event Generator), Matrix Element Calculators (CalcHEP, MadGraph/MadEvent), Detector Simulators (PGS, AcerDET, Delphes), Jet Algorithm (FastJET) and Interfacing Program (HepMC). At present interested to learn and adopt the Neural Network, Data Sciences and Machine Learning aspects in High Energy Colliders physics.

- Presently working to discover Supersymmetry and Multiple Higgs Bosons beyond Standard Model (SM) phenomena at currently operating Large Hadron Collider (LHC), Large Hadron electron Collider (LHeC) and future upgrade Future Circular Collider (FCC) experiments at CERN, Geneva, Switzerland.

- Passion for teaching – have International teachings experience at undergraduate and post-graduate levels for several basics and advance topics related to Physics.

- After taking courses on General Theory of Relativity (GTR) and Quantum Field Theory (QFT) at Shivaji University Kolhapur since 2021 in post-graduate level started working with M.Sc. Project students on Gravity and Black-hole (BH) thermodynamics.

- Over **32** research papers related to Particle Physics and BH published in International journals.

- Work experience with computational softwares - C, C++, Fortran, Python, PAW and Root.

TEACHING EXPERIENCES

Teaching is my passion. My objective as a teacher is to motivate my students to develop their critical thinking and their own learning interests. I have several years of teaching experience for Physics and related subjects in India and abroad (Germany, Mexico, Colombia and Guatemala). I have developed the skills for preparation of teaching syllabus, development of lecture material, coaching and assessment of undergraduate and postgraduate level students. Here is the summary of my teaching experiences:

Since 10/2021 -- Shivaji University Kolhapur, Kolhapur, Maharashtra, India

- **Quantum Field Theory (QFT)** for M.Sc.(II) **Theoretical Physics Special.** Semester-IV
- **General Theory of Relativity (GTR)** for M.Sc.(II) **Theoretical Physics Special.** Semester-III
- **Quantum Mechanics-I (II)** for M.Sc.(I) Semester-III (IV)
- **e-content Value Added Courses (VAC) on "Introduction to Thermodynamics"** for undergraduate students of the affiliated colleges of Shivaji University, Kolhapur

01/2019 - 12/2020 Universidad del Valle de Guatamela, Guatemala City, Guatemala

- Introduction to Particle Physics
- Statistics and Probabilities
- Fisica-III courses (Theory + Lab) with Electrostatics, Magnetostatics, LCR circuits, Optics etc.
- Modern Physics Experimental Lab(for 3rd year Physics students)
- Classical and Quantum Electrodynamics (for final year Physics students)
- Electro-magnetic Theory-I (for 3rd year Engineering Physics)
- Fisica-II Lab (for 2nd year Engineering Physics, topics includes Kinematics, Thermodynamics)

01/2016– 12/2018 ***Universidad de los Andes(Uniandes), Bogota, Colombia***

- Fisica-I and Fisica-II courses for undergraduate Engineering Physics students
- Fisica-II courses for Thermodynamics, Electrostatics, Magnetism, Electromagnetism, LCR circuits
- Classical Electrodynamics for final year Undergraduate and Postgraduate Physics students
- Waves and Oscillation (for Engineering Physics students)
- Fisica-I and Fisica-II Problem solving classes (for Engineering Physics students)

09/2014 - 12/2015 ***IFUAP-FCFM, BUAP, Puebla, Mexico***

- MadGraph-Pythia-Delphes for Large Hadron Collider (LHC) simulation for the Ph.D. students

08/2012 - 12/2012 ***Visva-Bharati University, Santiniketan, India***

- Advanced Quantum Mechanics-II for M.Sc. Final year students

10/2007 - 02/2008 ***Physikalisches Institute(PI), University of Bonn, Germany***

- Collider Physik (for Post-graduate students) - intended for problem solving

01/2001 - 01/2003 Jadavpur University, Kolkata, India

- Modern Physics for Electronics Engineering
- Kinetic Theory of Gases for Mechanical Engineering
- Heat and Thermodynamics for Printing Engineering

TEACHING INTEREST

- Modern Physics
- Quantum Mechanics
- Statistical Mechanics
- Special and General Theory of Relativity
- Electrodynamics (Classical and Quantum)
- Quantum Field Theory
- Gravitation and Cosmology
- High Energy Particle Physics
- Thermodynamics
- Numerical Computations (using Fortran, C C+, Python, and etc.)
- Experimental and Laboratory Demonstration
- Any other topics of Departmental need and interest

RESEARCH EXPERIENCES

I also have keen interest in high quality research projects such as:

- SM Higgs Boson and discovery of multiple (non-standard) type Higgs Boson signatures in various theoretically motivated models – both Supersymmteric (MSSM, Next-to-MSSM) and non-Supersymmetric (Generic 2HDM) in high energy collider experiments, such as LHC, LHeC, Future Circular Collider-hadron-electron(FCC-he) and etc.

- At present in Shivaji University Kolhapur I am working on Gravity, Orbits of various Black-Hole (BH) and BH thermodynamics with M.Sc. project students.

- Supersymmtery searches through Squark-Gluino, Chargino-Neutralino and Lighter top-Squark and bottom-Squark.

- Analytical calculation of various theoretical Neutrino mass models (R-parity, See-Saw, Left-Right) and their testabilty at High Energy Collider Experiments from simulation perspective.

- Perturbative-QCD (p-QCD) aspect of various jet cluster algorithms (Georgi Algorithms, Durham, Cambridge—Aachen) within FastJET simulation.

- Phenomenological and direct experimental consequences of Dark matter and Astro-particle physics. I would like to learn more on Dark matter aspects from a theoretical perspective.

- I am collaborating with experts in these fields from various institutes: e.g., University of Southampton, United Kingdom; IFUAP and FCFM, University of Puebla, Mexico and Physikalisches Institutes, University of Bonn, Germany.

- Member of top-Higgs Physics working group at the Large Hadron electron Collider (LHeC) and Future Circular Collider - hadron electron (FCC-he)

Here is the list of my research related work experiences:

10/2021– present **Shivaji University, Kolhapur, Maharashtra, India**
General Theory of Relativity, Gravity and Thermodynamics of various classical Black-holes

01/2016 – 12/2017 **Universidad de los Andes, Bagota, Colombia**
- Finding non-standard Higgs (Neutral and Charged) within NMSSM at LHeC
- Finding non-standard Higgs and lighter top-squark together within NMSSM at LHC with 13 TeV and 33 TeV proton-proton collisons

07/2014 – 01/2016 **IFUAP-FCFM, BUAP, Puebla, Mexico**
- Finding non-standard Higgs boson at LHeC within various Yukawa-textured 2HDM-III

04/2013 -11/2014 **Institute of Physics, Bhubaneswar, Orissa, India**
- Finding the SM Higgs in the top-quark associated production at LHC

10/2011 – 03/2013 **Visva-Bharati University, Santiniketan, India**
- Lighter top-Squark phenomenology at LHC

08/2011 – 09/2011 University of Zaragoza, Zaragoza, Spain
- Generic SUSY phenomenolgy

08/2009 – 09/2011 AHEP-IFIC, Valencia, Spain
- Bi-linear R-parity violations models of neutrino mass and its collider signatures with Displaced vertices
- Lepton flavor violations signatures with heavy singlet Neutrino in the left-right model

01/2007 – 07/2009 Physikalisches Institute, University of Bonn, Germany
- R-parity violating with sneutrino as a lightest Supersymmetric particles and its evidence at LHC
- CP-violating Higgs signatures within Minimal Supersymmetric Standard Model(MSSM) at LHC

08/2006 – 01/2007 Harish-Chandra Research Institute, Allahabad, India
- CP-violating Higgs within MSSM at LHC

01/2006 – 08/2006 Jadavpur University, Kolkata, India
- Neutrino masses and lighter top-Squark phenomenology at hadron colliders such as Tevatron and LHC

RESEARCH WORK IN PROGRESS

- Low mass CP-odd Higgs boson within Next-to-Minimal Supersymmetric Standard model (NMSSM), Siba Prasad Das, Anirudhha Purohit, Achyut Balapure and Pratik Sawat(near completion).

- A short introduction on Orbits of Reissner-Nordstroem Black-hole, Siba Prasad Das and Tushar S. Sutar(near completion).

- Low mass Charged Higgs boson within Next-to-Minimal Supersymmetric Standard model (NMSSM) at the Future Circular Collider-hadron electron (FCC-he), Siba Prasad Das and Jaime Hernandez Sanchez.

RESEARCH PUBLICATIONS

- A short introduction on Angular momentum of Kerr Blackhole, Sumit Panganti and Siba Prasad Das, https://arxiv.org/abs/2405.13595 (submitted in the journal: General Relativity and Gravitation)

- A short note on Magnetized Black-hole in Non-linear Electrodynamics, H. A. Redekar, R. B. Kumbhar, S. P. Das and K. Y. Rajpure, https://arxiv.org/abs/2308.12639 (submitted in the journal: General Relativity and Gravitation)

- Nearly Static Magnetized Kerr Black-hole in Non-linear Electrodynamics, K. G. Managave, H. A. Redekar, R. B. Kumbhar, S. P. Das and K. Y. Rajpure, https://arxiv.org/abs/2303.07736, Int. J. Mod. Phys. A 38, No. 28, 2350152(2023) https://doi.org/10.1142/S0217751X2350152X

- Prospects for discovering a light charged Higgs boson within the NMSSM at the FCC-eh collider,S.P. Das, J. Hernandez-Sanchez, S. Moretti, A. Rosado https://arxiv.org/abs/1806.08361

- Production of a light top-squark pair in association with a light non-standard Higgs boson within the NMSSM at the 13 TeV LHC and a 33 TeV proton collider, Siba Prasad Das, Jorge Fraga and Carlos Avila, https://arxiv.org/abs/1712.04395, Int.J.Mod.Phys.A 34, No. 22, (2019)1950125, https://doi.org/10.1142/S0217751X19501252
- Light neutral CP-even Higgs boson within Next-to-Minimal Supersymmetric Standard model (NMSSM) at the Large Hadron electron Collider (LHeC), Siba Prasad Das, and Marek Nowakowski,Phys.Rev.D.96(055014)2017;https://arxiv.org/abs/1612.07241,https://doi.org/10.1103/PhysRevD.96.055014
- Flavor violating signatures of lighter and heavier Higgs bosons within Two Higgs Doublet Model type III at the LHeC, Siba Prasad Das,J. Hernandez-Sanchez, A. Rosado, R. Xoxocotzi and S.Moretti, Phys.Rev.D94(055003)2016, https://arxiv.org/abs/1503.01464, https://doi.org/10.1103/PhysRevD.94.055003
- Testing SUSY models for the muon g-2 anomaly via Chargino-Neutralino Pair Production at the LHC , Siba Prasad Das , Monoranjan Guchait and D. P. Roy, Phys.Rev.D90(055011)2014;https://arxiv.org/abs/1406.6925;http://journals.aps.org/prd/pdf/10.1103/PhysRevD.90.055011, https://doi.org/10.1103/PhysRevD.90.055011
- Dilepton Signatures of the Higgs Boson with Tau-jet Tagging, Siba Prasad Das, Pankaj Agrawal and Somnath Bandyopadhyay, arXiv:1308.6511 [hep-ph], https://arxiv.org/abs/1308.6511
- Multilepton Signatures of the Higgs Boson through its Production in Association with a Top-quark Pair Siba Prasad Das, Pankaj Agrawal and Somnath Bandyopadhyay Phys.Rev.D88(093008)2013; https://arxiv.org/abs/1308.3043, http://prd.aps.org/pdf/PRD/v88/i9/e093008, https://doi.org/10.1103/PhysRevD.88.093008
- Probing Neutralino properties in minimal supergravity with bilinear R-parity violation, Siba Prasad Das, F. de Campos, O. J. P. Eboli, M. B. Magro, W. Porod D. Restrepo, M. Hirsch and J. W. F. Valle , Phys.Rev.D86(075001)2012;https://arxiv.org/abs/1206.3605,http://prd.aps.org/pdf/PRD/v86/i7/e075001, https://doi.org/10.1103/PhysRevD.86.075001
- Heavy Neutrinos and Lepton Flavor Violation in Left-Right Models, Siba Prasad Das, F.F.Deppisch, O.Kittel and J.W.F.Valle, Phys.Rev.D86(055006),2012; arXiv:1206.0256 [hep-ph], http://arxiv.org/abs/1206.0256, http://prd.aps.org/abstract/PRD/v86/i5/e055006, https://doi.org/10.1103/PhysRevD.86.055006
- CP-violating Supersymmetric Higgs at the Tevatron and LHC, Siba Prasad Das and Manuel Drees,Phys.Rev.D83(035003)2011;http://arxiv.org/abs/1010.3701,http://prd.aps.org/abstract/PRD/v83/i3/e035003, https://doi.org/10.1103/PhysRevD.83.035003
- Sneutrino as Lightest Supersymmetric Particle in B3 mSUGRA Models and Signals at the LHC, Siba Prasad Das, M. A. Bernhardt, H. K. Dreiner and S. Grab, Phys.Rev.D79(035003)2009; http://arxiv.org/abs/0810.3423 ; http://dx.doi.org/10.1103/PhysRevD.79.035003, https://doi.org/10.1103/PhysRevD.79.035003
- Focus Point SUSY at the LHC Revisited , Siba Prasad Das, A. Datta, M. Guchait, M. Maity and

S.Mukherjee,Eur.Phys.J.C54(2008)645;http://arxiv.org/abs/0708.2048, http://link.springer.com/content/pdf/10.1140%2Fepjc%2Fs10052-008-0561-2, https://doi.org/10.1140/epjc/s10052-008-0561-2

- Four body decay of the lighter top squark constrained by the Lighter CP-even Higgs boson mass bound, Siba Prasad Das , Phys.Rev.D73(115004)2006; http://arxiv.org/abs/hep-ph/0512011, http://prd.aps.org/abstract/PRD/v73/i11/e115004, https://doi.org/10.1103/PhysRevD.73.115004

- Top squark and neutralino decays in a R-parity violating model constrained by neutrino oscillation data , Siba Prasad Das, Amitava Datta and Sujoy Poddar, Phys.Rev.D73(075014)2006;http://arxiv.org/abs/hep-ph/0509171, http://prd.aps.org/abstract/PRD/v73/i7/e075014, https://doi.org/10.1103/PhysRevD.73.075014

- Top squark mass: current limits revisited and new limits from Tevatron Run-I , Siba Prasad Das, Amitava Datta and Manas Maity , Phys. Lett. B596(293)2004; http://arxiv.org/abs/hep-ph/0404049, http://www.sciencedirect.com/science/article/pii/S037026930401007X, https://doi.org/10.1016/j.physletb.2004.06.103

- Probing R-parity violating models of neutrino mass at the Tevatron via top Squark decays, Siba Prasad Das, Amitava Datta and Monoranjan Guchait , Phys.Rev.D70(015009)2004; http://arxiv.org/abs/hep-ph/0309168, http://prd.aps.org/abstract/PRD/v70/i1/e015009, https://doi.org/10.1103/PhysRevD.70.015009

- Four Body Decay of the Stop Squark at the Upgraded Tevatron , Siba Prasad Das, Amitava Datta and Monoranjan Guchait , Phys.Rev.D65(095006)2002; http://arxiv.org/abs/hep-ph/0112182, http://prd.aps.org/abstract/PRD/v65/i9/e095006, https://doi.org/10.1103/PhysRevD.65.095006

RESEARCH PUBLICATIONS in FCC-he/HL-LHC Collaborations:

- The Large Hadron-Electron Collider at the HL-LHC, https://arxiv.org/abs/2007.14491 CERN-ACC-Note-2020-0002, Siba Prasad Das et.al. Journal of Physics G: Nuclear and Particle Physics 48(11),110501, https://iopscience.iop.org/article/10.1088/1361-6471/abf3ba

- HE-LHC: The High-Energy Large Hadron Collider: Future Circular Collider Conceptual Design Report Volume 4, Siba Prasad Das et.al. European Physical Journal: Special Topics228(5), p.1109-1382 https://link.springer.com/article/10.1140/epjst/e2019-900088-6

- FCC-hh: The Hadron Collider: Future Circular Collider Conceptual Design Report Volume 3, Siba Prasad Das et.al, European Physical Journal: Special Topics 228(4), pp. 755-1107,https://link.springer.com/article/10.1140/epjst/e2019-900087-0

- FCC Physics Opportunities: Future Circular Collider Conceptual Design Report Volume 1, Siba Prasad Das et.al., European Physical Journal C 79(6),474,https://iopscience.iop.org/article/10.1088/0954-3899/39/7/075001

- FCC-ee: The Lepton Collider: Future Circular Collider Conceptual Design Report Volume 2, Siba Prasad Das et.al., EPJ: Special Topics 228(2), pp. 261-623, https://link.springer.com/article/10.1140/epjst/e2019-900045-4

CONFERENCE PAPERS, TALKS and POSTER PRESENTATION

- "Exploring the Multifaceted Impact of Radiation on Electrode Materials in Supercapacitors" (Poster), Rajendra G. Sonkawade, Siba Prasad Das, Sabiya S. Bagwan, Satyashila D. Ghongade, Shital J. Shinde, Azeem M. Bagwan, NPMMI-2024, BARC, Mumbai, India
- "Recent results on Neutron Monitor" (Poster), Siba Prasad Das, Vaishnavi Barge and Rajiv S. Vhatkat ICFAST-2023, Department of Physics, Shivaji University Kolhapur, Maharashtra India

- "Neutral and Charged Higgs boson phenomenology at the LHeC and FCC-eh"(Poster), Siba Prasad Das, Marek Nowakowski, J. Hernández-Sánchez, Stefano Moretti, Alfonso Rosado, https://arxiv.org/abs/1812.03895,PIC2018: XXXVIII International Symposium on Physics in Collision, Bogotá, Colombia, 2018, https://inspirehep.net/conferences/1631445

- "Light CP-even Higgs searches", at LHeC and FCC-eh Workshop, September 2017, **at CERN, Geneva, Switzerland**, Siba Prasad Das, Marek Nowakowski, https://indico.cern.ch/event/639067/contributions/2700463/attachments/1520934/2375997/spdFCCeh.pdf

- "Non-standard Higgs bosons searches at Large Hadron electron Collider (LHeC)", May 2017, at MC4BSM 2017 at **SLAC, Stanford, USA,** Siba Prasad Das, Marek Nowakowski, (https://indico.cern.ch/event/568875/timetable/),https://indico.cern.ch/event/568875/contributions/2548702/attachments/1459110/2253243/spMC4BSM.pdf
- "Flavor violating signatures of neutral Higgs bosons at the LHeC", J. Hernandez-Sanchez, S. P. Das, S. Moretti, A. Rosado, R. Xoxocotzi, https://arxiv.org/abs/1509.05491,XXIII International Workshop on Deep-Inelastic Scattering, DIS2015, *PoS* DIS2015 (2015) 227, https://inspirehep.net/conferences/1297968
- "CP-violating MSSM Higgs at Tevatron and LHC", Siba Prasad Das and Manuel Drees, Journal of Physics 259(012071)2010; Talk at PASCOS 2010, Valencia, Spain, Journal of Physics: Conference Series, Volume 259, Issue 1, article id. 012071, 6 pp. (2010), doi:10.1088/1742-6596/259/1/012071
- "CP-violating MSSM Higgs at Tevatron and LHC", Siba Prasad Das and Manuel Drees,Talk at SUSY 10, Bonn, arXiv:1010.2129[hep-ph] https://arxiv.org/abs/1010.2129
- "Indirect KK effects", Siba Prasad Das, K. Agashe, M.Guchait and M.Vos,Les Houches workshop 2009, France, https://inspirehep.net/conferences/979939, https://doi.org/10.48550/arXiv.1005.1229(page:110-116)
- "CP-violating Higgs at Tevatron", Siba Prasad Das, Amitava Datta and Manuel Drees, arXiv:0809.2209 [hep-ph]; Talk at SUSY08, Seoul, Korea; AIP Conf.Proc.1078:223-225,2009; doi:10.1063/1.3051916
- "Sneutrino LSPs in R-parity violating minimal Supergravity models", Siba Prasad Das, M. A. Bernhardt, H. K. Dreiner and S. Grab, arXiv:0809.3176 [hep-ph]; Talk at SUSY08, Seoul, Korea; AIP Conf.Proc.1078:306-308,2009; doi:10.1063/1.3051942

- Mondal, N.K., Rindani, S.D., Agashe, K., Siba Prasad Das *et al.* Working group report: High energy and collider physics. *Pramana - J Phys* 63, 1331–1353 (2004). https://link.springer.com/article/10.1007/BF02704899
- Working group report: Collider Physics, Siba Prasad Das *et al. Pramana - J Phys*, 67(4):617-637(2006),https://link.springer.com/article/10.1007/s12043-006-0057-2
- Working group report: Low energy and flavour physics, Siba Prasad Das *et al.Pramana- J Phys*

63:p1359–1365(2004),https://link.springer.com/article/10.1007/BF02704901

LECTURES IN ADVANCED SCHOOL

- "BSM Higgs",at 5th Uniandes Particle Physics School, at Universidad de los Andes, Bogota, https://fisindico.uniandes.edu.co/indico/sessionDisplay.py?sessionId=18&confId=71#20170524
- "A short review on Higgs searches at LHC experiments", at 3rd Andean School on Nuclear Physics, at Universidad de los Andes, Bogota, https://escuelafisicanuclear3.uniandes.edu.co/images/LecturesNotes/28-07/SibaDas.pdf
- "An Introduction to Supersymmetry", at IFUAP (November-December 2015), BUAP, Puebla, Mexico, http://www.ifuap.buap.mx/eventos/2015/Supersymmetry.pdf
- "An Introduction to Supersymmetry", (Jan. 2016) at Instituto de Fisica y Matematicas(IFM), Universidad Michacana de San Nicolas de Hidalgo(UMSNH), Morelia, Michoacan, Mexico.

REFEREE OF: Hindawi Publishing Corporation journals

Workshop Organized: Convener of the National Workshop on **"Contemporary Issues in Astronomy and Astrophysics-2024" (CIAA-2024)** held at Department of Physics, Shivaji University, Kolhapur during September 13-15, 2024 in Collaboration with Inter-University Centre for Astronomy and Astrophysics (IUCAA), Pune

Projects- Master Thesis

- Maria Teresa, Universidad del Valle de Guatemala –Weak Interaction in Particle Physics(2019)
- Kirti G. Mangave, Shivaji University- Maxwell Equation in Curved Space-time(2022)
- Harish A. Redekar, Shivaji University- Maxwell Equation in Curved Space-time(2022)
- Rohit B. Kumbhar, Shivaji University- Black-hole and Perrose Processes (2022)
- Aishyara Jadav, Shivaji University- Schwarzschield Black-hole(2022)
- Nikita S. Raut, Shivaji University- Study of Kerr Black-hole(2022)
- Sumit R. Panganti, Shivaji University- Stable orbits of Kerr geometry (2023)
- Rubia Y. Mulla, Shivaji University – Feynman Diagram and it's application (2023)
- Shradhaa S. Kamble, Shivaji University- Reissner-Nordstroem Black-hole(2023)
- Priyanka Kanade, Shivaji University- Gravitational Waves (2023)
- Raj Hasabe, Shivaji University- Partition function of Schwarzschield Black-hole(2023)
- Shardul Chavan, Shivaji University- Baryogenesis (2023)
- Aniruddha Purohit, Shivaji University -- Light CP-odd Higgs boson in NMSSM (2024)
- Pratik Sawat, Shivaji University -- Light CP-even Higgs boson in NMSSM (2024)
- Achyut Balapure, Shivaji University -- Charged Higgs boson in NMSSM (2024)
- Marjina Nadaf, Shivaji University – Study of Schwarzschild Blackhole (2024)
- Tushar S. Sutar, Shivaji University – Orbits of Reissner-Nordstroem Black-hole(ongoing-2025)
- Anand Masal, Shivaji University – Gravitational Waves and LIGO Detector (ongoing-2025)
- Tejas Kothawale, Shivaji University-- Partition Function of Reissner-Nordstroem Black-hole(ongoing-2025)

SELECTED SEMINARS/COLLOQUIUM IN CONFERENCE/ WORKSHOP /UNIVERSITIES

- "A brief introduction to Particle Physics discovery: Past, Present and Future", **Department of Physics, Shivaji University Kolhapur, Maharashtra, India** on 1st October 2022

- "Albert Einstein (1879-1955):Life and Legacy", **Department of Physics, Shivaji University Kolhapur, Maharashtra, India** on 19h April 2022

- "Albert Einstein (1879-1955):Life and Legacy", **Rajarshi Chhatrapati Shahu College, Kolhapur, Maharashtra, India** on 12th July 2022

- **Centro America Mexico Webinars series:**
  Part-A: Supersymmetry Phenomenolgy: https://youtu.be/5bWsfDV6y2w
  Part-B: Supersymmetry Formalism: https://youtu.be/YcGtaK5ov7E

- Beyond Standard Model phenomenology at High energy Collider Experiments, Universidad de San Carlos, Guatemala City, Guatemala, February 2019,https://ecfm.usac.edu.gt/taxonomy/term/521

- Beyond Standard Model Phenomenology at High Energy Collider Experiments, Yachay Tech University, October 2018, https://www.yachaytech.edu.ec/evento/beyond-standard-model-phenomenology-at-high-energy-colliders/

- **"**Non-standard Higgs boson phenomenology at LHeC", at 2nd ComHEP Workshop, December 2017, at Universidad Nacional de Colombia, Bogota, Colombia, https://indico.cern.ch/event/640471/contributions/2599021/

- "Beyond Standard Model phenomenology at present and upcoming colliders", at the Universidad de Antonio Narino, Bogota, Colombia, August 2017, http://investigacion.uan.edu.co/grupo-de-investigacion-fenomenologia-de-particulas-elementales-y-cosmologia/seminarios

- "A brief discussion on NMSSM Higgs phenomenology at LHC and LHeC", Seminar in High Energy Physics group, 29.06.2017, Institute of Physics, Bhubaneswar, Orissa, India

- "A brief discussion on NMSSM Higgs phenomenology at LHC and LHeC", Phenomenology Seminar, April 2017, Universidad de los Andes, Bogota, Colombia

- "Neutrino and Higgs phenomenology at present and future colliders",Grupo de Fenomenologia de Interacciones Fundamentales, March 2017, Universidad de Antioquia,Medellin, Colombia,http://gfif.udea.edu.co/seminarios/

- "Unraveling the new physics at High Energy Collider Experiments", Physics Colloquium,February 2016, Universidad de los Andes, Bogota, Colombia

- "Neutrino Phenomenology beyond the Standard Model at the Large Hadron Collider", Phenomenology Seminar, January 2016, Universidad de los Andes, Bogota, Colombia

- "How to look for new physics at collider experiments", Theory seminar, January 2016,FCFM, BUAP, Puebla, Mexico, http://www.fcfm.buap.mx/PCyRG/charlas2016-1.html

- "A short overview on Higgs physics at the LHC and LHeC", in Mexico, September 2014, http://indico.fis.cinvestav.mx/categoryDisplay.py?categId=1 (CINVESTAV Colloquium), https://indico.nucleares.unam.mx/conferenceDisplay.py?confId=856 (ICN-UNAM), http://fisica.ugto.mx/~gfm/ai1ec_event/physics-seminar-31/?instance_id=9346 (UGTO), http://www.ifuap.buap.mx/seminario/resumen/2014/38_Siba.pdf (IFUAP)

- "A brief discussion on Higgs boson phenomenology at the LHC and LHeC", May 2015, at IFM, Michoacan, Mexico, http://www.ifm.umich.mx/ifm/index.php/instituto/seminarios-y-eventos/coloquios-de-fisica/2015/

- "Signature of Neutrinos at the Large Hadron Collider", in Mexico,September 2014, http://indico.fis.cinvestav.mx/conferenceDisplay.py?confId=434 (CINVESTAV)

- "A short overview on Higgs physics at the Large Hadron Collider", PAMU, ISI, Kolkata,India, February 2014; http://www.isical.ac.in/~pamu/seminar.php

- CPFS-CTP Colloquium: "A brief introduction to Higgs phenomenology at LHC", June 2014, Jamia Millia Islamia, New Delhi, India; http://www.ctp-jamia.res.in/events/talks.html

- "Signature of Neutrinos at Large Hadron Collider", Theory seminar, TIFR, India, July 2012; http://theory.tifr.res.in/~nilmani/free_meson/free_meson_12July12.pdf

- "Flavor violating and CP-violating Supersymmetric Higgs at LHC" , Universidad de Zaragoza, Spain, February 2011; http://dftuz.unizar.es/ftzar/activities/seminars/2011/20110225.html

- "Rare decays and CP violating Higgs at MSSM and beyond", LPT, Orsay, France, January 2011, http://www.th.u-psud.fr/IMG/pdf/Das2011.pdf

- "Bilinear RPV and LHC at 7 TeV", II-CPAN Days, Valencia, November 2010, Spain http://indico.ific.uv.es/indico/contributionDisplay.py?contribId=11&sessionId=21&confId=313

- "Neutralino decay length measurement consistent with Neutrino masses and mixing in Bilinear R-parity violating MSSM at LHC", HEPTOOLS final meeting, Granada, Spain, November 2010, http://indico.cern.ch/getFile.py/access?resId=10&materialId=slides&confId=91923

- "CP-violating Higgs at Tevatron and LHC" , SUSY 10, Bonn, August 2010, http://indico.desy.de/getFile.py/access?contribId=172&sessionId=232&resId=0&materialId=slides&confId=2955

- "CP-violating Higgs at Tevatron and LHC", PASCOS 2010, Valencia, July 2010, Spain
- "Sneutrino LSPs in R-parity violating mSUGRA Models and feasibility study at the LHC",IFIC, University of Valencia, January 2009, Spain http://ific.uv.es/ahep/Talks/090123-das.pdf
- "Sneutrino LSPs in R-parity violating minimal supergravity models",DESY-TH workshop, Sepmetmber 2008, Germany, http://th-workshop2008.desy.de/e44/e49/e158/infoboxContent185/Das.pdf
- "CP-violating Higgs at Tevatron", Focus week on LHC physics, IPMU, Tokyo University, Kashiwa, June 2008, Japan,http://www.ipmu.jp/seminars/lhc08/cpvHIPMUDas.pdf
- "CP-violating Higgs at Tevatron", SUSY-08, Seoul, June 2008, South Korea, http://susy08.kias.re.kr/slide/19p/p1/2nd/Das.pdf
- "Sneutrino LSPs in R-Parity Violating Minimal Supergravity Models", SUSY-08, Seoul, June 2008, South Korea, http://susy08.kias.re.kr/slide/20p/p2/2nd/spdas.pdf

SELECTIVE PARTICIPATIONS IN SCHOOL AND WORKSHOPS

- Universidad Nacional de Colombia**,** Bogota, Colombia - 2nd ComHEP Workshop 2017
- CERN,Geneva, Switzerland - LHeC and FCC-eh Workshop, 2017
- SLAC,Stanford, USA - Monte Carlo for Beyond SM **(**MC4BSM 2017)
- Puri, India - Workshop on High Energy Physics Phenomenology (WHEPP13)
- Santander, Spain - Higgs Days: "Theory meets experiment"

- Les Houches, France - “Physics at the TeV colliders”
- RWTH Aachen, Germany - 2nd Helmholtz Alliance “Physics at the Terascale”
- TERASCALE PBH Physiczentrum Bad Honef, Germany - WE-HERAEUS-PHYSICS SEMINAR
- DESY Hamburg, Germany - Kick-off Workshop, Physics
- Karlsruhe Institute of Technology (KIT), Germany - SUSY07
- Institute of Physics, Bhubaneswar, India – Workshop on High Energy physics Phenomenology (WHEPP2006)
- The Abdus Salam ICTP, Italy - Summer School on Particle Physics

COMPUTING SKILLS AND EXPERTISE

- Event generators: PYTHIA8, PYTHIA6, ISAJET, MadGraph/MadEvent, AcerDET,Delphes detector simulator
- Data Analysis and Optimization (now learning): Toolkit for Multivariate Analysis(TMVA)
- Matrix Element calculators:Alpgen, CompHEP/CalcHEP, LanHEP, TOPREX, PROTOS
- Public domain codes and algebraic packages: NMSSMTools, CPsuperH, 2HDMC, HDECAY,SOFTSUSY, SUSPECT, micrOMEGA, SPheno, FeynHiggs, FeynArts, FeynCalc, FeynDiagram, FormCalc, SusHi.
- Graphical tools:PAW, ROOT
- Monte Carlo simulation :Parton level Monte Carlo simulation, HEPMC, FastJET
- Languages and Operating Systems :Fortran, C, C++, Pythonand Unix, Linux, Windows
- Analytical calculations in Standard Model, Supersymmetry, Neutrino masses, Flavor violation
- CP-violation, R-parity violation, Left-Right models, Higgs Physics and etc.
- Implementation of various external (parton level) processes into PYTHIAevent generator.

REFERENCES

I am grateful to my following mentors for providing me guidance and support through out my career. I shall be happy to provide their contact details as references.

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