Yoshini Bailung

Curriculum Vitae

Personal Details

Date of birth:	11th July 1996
Designation:	PhD Scholar
Address:	Department of Physics, Indian Institute of Technology Indore, Simrol, MP-453552, India
Nationality:	Indian
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Find me:	Website, InspireHEP, ResearchGate, GoogleScholar

Research Interests

1. **Experimental Data Analysis with ALICE@CERN:** Analysis of charm production in pp collisions at $\sqrt{s}$ =13 TeV with ALICE at the LHC, CERN
   - D-meson self-normalised yields vs charged particle multiplicity and transverse spherocity in pp collisions
2. **Heavy-Ion Phenomenology:**
   - Heavy-flavour production, fragmentation, and hadronization with jets and angular correlations
   - Formation of (anti-)nuclei via coalescence, Anisotropic flow of light nuclei
   - Two particle correlations, Femtoscopy
3. **Machine Learning in high energy physics:**
   - Detection of muon tracks from J/Ψ decay using artificial neural networks
   - Signal reconstruction for the Zero Degree Calorimeter with ALICE

Publications

1. **Yoshini Bailung**, Sudhir P. Rode, Neha Shah, Ankhi Roy; *"Probing coalescence of light nuclei via femtoscopy and azimuthal anisotropies"*; *Under review*; [arXiv]
2. **Yoshini Bailung**, Neha Shah, Ankhi Roy; *"Searching for enhancement in coalescence of in-jet (anti-)deuterons in proton–proton collisions"*; Published in Physical Review C; [doi:10.1103/PhysRevC.109.044908]
3. **Yoshini Bailung**, Neha Shah, Ankhi Roy; *"Exploring light nuclei production at RHIC and LHC energies with A Multi-Phase Transport model and a coalescence afterburner"*; Published in **Nuclear Physics A**; [10.1016/j.nuclphysa.2023.122701]
4. Ravindra Singh, **Yoshini Bailung**, Sumit Kumar Kundu, Ankhi Roy; *"Jet fragmentation via azimuthal angular correlations of electrons from heavy flavor decay in pp, p-Pb, and Pb-Pb collisions using PYTHIA8+Angantyr calculations"*; Published in **Physical review C**; [10.1103/PhysRevC.107.024911]
5. Sumit Kumar Kundu, **Yoshini Bailung**, Sudhir Pandurang Rode, Partha Pratim Bhaduri, Ankhi Roy; *"Effect of various particlization scenarios on anisotropic flow and particle production using UrQMD hybrid model"*; Published in **Nuclear Physics A**; [10.1016/j.nuclphysa.2022.122574]

6. Ravindra Singh, **Yoshini Bailung**, Ankhi Roy; *"Dynamics of particle production in Pb–Pb collisions at $\sqrt{s_{NN}}$ = 2.76 TeV using PYTHIA8 Angantyr model"*; Published in **Physical review C**; [10.1103/PhysRevC.105.035202]

7. Sumit Kumar Kundu, **Yoshini Bailung**, Sudhir Pandurang Rode, Partha Pratim Bhaduri, Ankhi Roy; *"Dependence on beam energy and nuclear equation of state of anisotropic flow and particle production in low-energy heavy-ion collisions"*; Published in **Physical Review C**; [10.1103/PhysRevC.104.024907]

ALICE Analysis Notes

1. Marco Giacalone, **Yoshini Bailung**, Randhir Singh ; *"Measurement of D-meson (D^0, D^+, D^{*+}) production as a function of event shapes in proton–proton collisions at $\sqrt{s} = 13$ TeV"*; ALICE Analysis Note; ID number: 1240; [Link to contribution]

2. Marco Giacalone, **Yoshini Bailung**, Randhir Singh ; *"Measurement of D-meson (D^0, D^+, D^{*+}) production versus charged particle multiplicity in proton-proton collisions at $\sqrt{s} = 13$ TeV"*; ALICE Analysis Note; ID number: ANA-1167; [Link to contribution]

Conference Proceedings

1. **Yoshini Bailung**, on behalf of ALICE Collaboration; *"Heavy-flavour production as a function of charged-particle multiplicity with ALICE at the LHC"*; Submitted to **MDPI Proceedings Series for Hot Quarks 2022, 11 – 17 October 2022** [Under review]

2. **Yoshini Bailung**, Sudhir Pandurang Rode, Neha Shah, Ankhi Roy; *"Production of light nuclei in heavy-ion collisions via a coalescence mechanism"*; Published in **Proceedings of 67th DAE Symposium on Nuclear Physics, 9 - 13 December 2023** [proceedings/snp2023];

3. Sumit Kumar Kundu, **Yoshini Bailung**, Sudhir Pandurang Rode, Partha Pratim Bhaduri, Ankhi Roy; *"Dependence of anisotropic flow and particle production on particlization models and nuclear equation of state"*; Published in **Dynamics of HOT QCD Matter – Current status and Developments, International Journal of Modern Physics E, 12-14 May, 2022**[proceedings/HotQCD2022]

4. Sumit Kumar Kundu, **Yoshini Bailung**, Sudhir Pandurang Rode, Partha Pratim Bhaduri, Ankhi Roy; *"Dependence of anisotropic flow of net-protons on particlization model for various nuclear equation of state"*; Published in **Proceedings of 65th DAE Nuclear Physics Symposium, 1-5 December, 2021** [proceedings/snp2021]

5. **Yoshini Bailung**, on behalf of ALICE Collaboration; *"Measurements of heavy-flavor production as a function of multiplicity with ALICE at the LHC"*;**SciPost Physics Proceedings of the 50th International Symposium on Multiparticle Dynamics (ISMD2021), 12-16 July, 2021** [10.21468/SciPostPhysProc.10.033]

6. **Yoshini Bailung**, on behalf of ALICE Collaboration; *"Measurement of* D*-meson production as a function of charged-particle multiplicity in proton-proton collisions at $\sqrt{s} = 13$ TeV with ALICE at the LHC"*; Published in **Proceedings of the 9th Annual Large Hadron Collider Physics (LHCP2021) conference, 7 - 12 June, 2021** [pos.sissa.it/397/190]

Talks

1. *"Searching for collective-like effects for heavy-flavour in small systems with ALICE"* at the **14 International Workshop on Multiple Parton Interactions at the LHC,**

MPI@LHC 2023, University of Manchester, Manchester, United Kingdom, 20-24 November 2023; [Link to contribution]

2. "*Measurement of heavy-flavour production as a function of charge-particle multiplicity with ALICE at the LHC*" at the **4th Heavy Flavour Meet 2023**, IIT Goa, Goa, India, 2-4 November, 2023; [Link to contribution]

3. "*Measurement of heavy-flavor production as a function of charge-particle multiplicity with ALICE at the LHC*" at the **9th edition of the Workshop for Young Scientists on the Physics of Ultra-relativistic Nucleus-Nucleus Collisions (Hot Quarks 2022)**, Colorado, USA, 11-17 October, 2022; [Link to contribution]

4. "*Measurements of heavy-flavor production as a function of multiplicity with ALICE at the LHC*" at the **50th International Symposium on Multiparticle Dynamics (ISMD2021)**, virtual, 12-16 July, 2021; [Link to contribution]

Posters

1. **Yoshini Bailung**, Sudhir Pandurang Rode, Neha Shah, Ankhi Roy;
"*Production of light nuclei in heavy-ion collisions via a coalescence mechanism*" at the **67th DAE Symposium on Nuclear Physics, 9 - 13 December 2023, IIT Indore, Indore, India**

2. Swapnesh Khade, Ravindra Singh, **Yoshini Bailung**, Ankhi Roy;
"*Influence of parton distribution functions on* $D^0 - \overline{D}^0$ *azimuthal angular correlations*" at the **4th Heavy Flavour Meet, 2 - 4 November 2023, IIT Goa, Goa, India**

3. Sumit K. Kundu, **Yoshini Bailung**, Ravindra Singh, Sudhir P. Rode, Ankhi Roy;
"*Deuteron production using UrQMD model via a coalescence afterburner at SPS energies*" at the **ICPAQGP, 7 - 10 February, 2023, Puri, Odisha, India**

4. **Yoshini Bailung**, on behalf of ALICE Collaboration;
"*Measurement of* D*-meson production as a function of charged-particle multiplicity in proton-proton collisions at* $\sqrt{s} = 13$ *TeV with ALICE at the LHC*" at the **29th International Conference on Ultra-relativistic Nucleus-Nucleus Collisions (Quark Matter), 4 - 10 April, 2022, Krakow, Poland**; [Link to contribution]

5. **Yoshini Bailung**, on behalf of ALICE Collaboration;
"*Measurement of* D*-meson production as a function of charged-particle multiplicity in proton-proton collisions at* $\sqrt{s} = 13$ *TeV with ALICE at the LHC*" at the **9th Annual Large Hadron Collider Physics (LHCP2021) conference, 7 - 12 June, 2021**; [Link to contribution]

Education

2019-present	PhD in Physics at **IIT Indore**
2017-2019	Master of Science in Physics from **Gauhati University**
2014-2017	Bachelor of Science in Physics from **University of Delhi**

Mentoring

1. Rohit Kaundal [Masters Student 2023 - present]
Thesis Title : "*Investigating two-particle correlations in* ep *photoproduction and assessing the resolution and efficiency of the ePIC detector*"

2. Shankar Nair [Masters Student 2022 - 2023]
Thesis Title : "*Simulation studies of* π^0, η *and* ω *meson reconstruction performance*

in pp collisions at $\sqrt{s} = 14$ TeV in Forward Calorimeter (FoCal), ALICE"

3. Anurag [Masters Student 2022 - 2023]
   Thesis Title : "*Flavour-dependent study of effects of multiple parton interactions and colour reconnection on the jets*"

4. Diksha Sharma [Masters Student 2021 - 2022]
   Thesis Title : "*Feasibility Study of Exotic Particle X(3872) with ATHENA in EIC Experiment and its Possible Structures*"

Teaching Assistant-ship

1. Bachelor in Technology Courses: Undergraduate Physics Lab [Practicals], Electrodynamics [Theory]

2. Master of Science Courses: Numerical Methods [Practicals], Mathematical Physics [Theory]

Technical and Personal Skills

Operating Systems: Linux, macOS, WINDOWS
Programming Languages: C/C++, python, FORTRAN, Bash
Scientific Packages/Frameworks: ROOT, Mathematica
Specialised Packages/Frameworks: AliPhysics, PYTHIA, AMPT, UrQMD, SMASH
TypeSetting/ Web Development: LaTeX, HTML, CSS, Hugo
Spoken Languages: English, Hindi, Assamese (Mother tongue)