Dr. Yasir Ali

Curriculum Vitae

Address: *Department of Physics*
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Education

2011-2015 *PhD in Physics, Jagieollonian University, Krakow Poland,*

Thesis: "Feasibility studies for open charm measurements with NA61/SHINE experiment at CERN-SPS using new dedicated Vertex Detector."

2008-2010 *MSc (Research) in Physics, University of Manchester, Manchester UK.*

Thesis: "Surface Studies of quantum dot based Photovoltaics."

2003-2007 *BS in Electronics, COMSATS University Islamabad, Pakistan*

Employment Experience

2022-Present Tenured Associate Professor - Physics Department COMSATS University Islamabad Pakistan

2023 Post-Doctoral Research Fellow at AGH University Krakow Poland
Project: Electromagnetic Calorimeter Design and Simulation for future Election Ion Collider at Brookhaven National Lab (BNL) USA

2019 Post-Doctoral Research Fellow at University of Hawaii, Honolulu, Hawaii USA
Project: ASIC read-out board design and testing for future Election Ion Collider at Brookhaven National Lab (BNL) USA

2015-2022 Assistant Professor - Physics Department COMSATS University Islamabad Pakistan

2010-2011 Lecturer - Physics Department COMSATS University Islamabad Pakistan

2007-2008 Research Associate -Physics Department COMSATS University Islamabad Pakistan

Research Projects

- Working on Simulations and data analysis for the study of signatures of Quark Gluon Plasma (QGP) and studying QGP in proton-proton, proton-nucleus, and nucleus-nucleus collisions at LHC and RHIC energies for ALICE Collaboration.

- Design and simulations of the proposed High Rate Calorimeter as Luminosity Detector in the Far Backward detector region using dedicated EIC/Epic software framework for a future Electron Ion Collider experiment at AGH University Krakow Poland.

- Designed the circuit board and firmware for implementing the Si-READ ASIC readout of a ring-imaging detector prototype at the Instrumentation Development Lab, University of Hawaii, Honolulu, Hawaii, USA.

- Simulations for the feasibility study of new Vertex Detector as part of the NA61/SHINE experiment upgrade at SPS CERN, Geneva, Switzerland.

- Contributed to the software development and Installation of the Beam Position Detector in the NA61/SHINE experiment at SPS CERN, Geneva, Switzerland (December 2013 – March 2015).

- Worked at Gesellschaft für Schwerionenforschung (GSI) in Darmstadt, Germany, on software development for front-end electronics for the CBM experiment (July 2011 - December 2011).

Software Skills

- Simulations, Analysis and Detector Design tools: ROOT, GEANT4, EIC/EPIC data analysis framework, ALI-ROOT (ALICE Physics analysis) and Origin,

- Language Skills: C/C++, Python, FORTRAN, Basic VHDL/Verilog.

- Monte-Carlo simulation codes: HIJING, PYTHIA, CRMC codes like EPOS, EPOS-LHC, QGSJET, SIBYLL, and DPMJET etc

- Linux (Debain and ubuntu distributions) and Windows Operating systems, MS Office, Latex

- PCB Design Software's: ALTIUM, OrCAD, PSPICE

Research Areas of Interest

- Study of Quark Gluon Plasma in Heavy Ion Collision at Relativistic energies,
- Study of heavy flavor Physics and Quark Gluon Plasma and Physics beyond Standard Model at LHC energies.
- Detector design and simulations and Detector testing.
- Development of Front End Electronics for high energy/particle physics experiments.

Contributions for ALICE Collaboration

- Member of Monte-Carlo, Jet and Light Flavour ALICE analysis groups
- Served as a Shift Leader at the ALICE Control Room, overseeing operations for the ALICE experiment at CERN, Geneva, Switzerland. (2017).
- Participated in the Review of ALICE Publications (2018-2021)
- Participated in the Run 2 data analysis and simulations
- Currently working on O2 ALICE Software framework.

Invited Talks at International Conferences

- *International Conference of Modern Trends in Physics at Baku State University, Baku Azerbaijan November 30 – December 01, 2023.*
- *International Conference of Modern Trends in Physics at Baku State University, Baku Azerbaijan 15th-17th December, 2021.*
- *Symposium on applied nuclear physics and innovative technologies. September 24th to 27th, 2014, Jagiellonian University, Kraków Poland.*
- *Symposium on applied nuclear physics and innovative technologies, 03-06 June 2013, Jagiellonian University, Krakow Poland.*
- *Strangeness in Quark Matter 21-27 July 2013, The University of Birmingham, Birmingham United Kingdom.*
- *International Conference on New Frontiers in Physics, From 28 August 2013 to 5 September 2013 (Europe/Athens) Kolymbari, Crete, Greece.*

Local Invited Talks

- *Invited Speaker at the Workshop on Monte-Carlo Simulations-Applications in Science and Technology, May 15-17, 2017, PINSTECH NILORE Islamabad, Pakistan.*
- *Invited Speaker at the Department of Physics, Faculty of Physical and Numerical Sciences, Abdul Wali Khan University Mardan, 29th November 2017.*
- *Invited a Speaker at the Department of Physics, Gordon College, Rawalpindi, 10th May 2018.*

Awards

- Got fully funded Scholarship from Nano-Science and Technology Project COMSATS University Islamabad, Islamabad Pakistan for Masters by Research in Physics at University of Manchester, Manchester. UK. (2008-2010).

- Got fully funded Scholarship from Polish Science Foundation for PhD Position at Jagiollonian University, Krakow Poland from (2011-2015).

Teaching and Student Thesis Supervision

Having 9 Years of Post-PhD and 1 Year of Pre-PhD teaching experience at Under-graduate and graduate levels in Physics department including the Prominent courses as:

Undergraduate Courses

- *Applied Physics for Engineers*
- *Electricity and Magnetism*
- *High Energy Physics*
- *Applied Quantum Mechanics*
- *Experiments in Mechanics*
- *Electric and Magnetic Fields*
- *Boundary Value Problems*
- *Nuclear Physics*

Graduate Courses

- *Heavy Ion Physics*
- *Particle Physics*
- *Graduate Lab course*

PhD Students Research Projects (Completed):

- *Study of Strange Particle Production at RHIC and LHC energies.*
- *Study of the Inclusive Characteristics of Secondary Charged Particles Produced in the Hadron Nucleus Collisions at LHC Energies*
- *Study of Secondary Charged Particles Produced in Hadron-hadron and Nucleus-Nucleus collisions at LHC and RHIC energies.*

Masters Students research Projects (Completed):

- *Study of the Jet Production at the LHC energies*
- *Charmed and Strange meson production in Pb-Pb collisions at the LHC energies*
- *D meson production in pp and p-Pb collisions at the LHC energies*
- *$\psi(2S)$ and J/ψ production in pp collisions at the LHC energies*
- *Strange particle production in Pb-Pb and pp collisions at the LHC energies*
- *Λ^{+}_{c} in pp and p-Pb collisions at LHC energies.*

Bachelors Students research Projects (Completed):

- *Study of the energy dependence of J/ψ and ψ(2S) production in pp collisions at the LHC energies*
- *Study of energy dependence of transverse momentum distributions in proton-proton collisions at LHC energies*

Ongoing research Projects:

- *MS Student: Study of J/ψ and ψ(2S) production in heavy-ion collisions at the LHC and RHIC energies.*

- *BS Student: Λ^{+}_{c} in hadron-hadron and nucleus-nucleus collisions at LHC energies.*

Scientific Publications

Publications: in the list from Year (2013-2024):

- *Alamgir Khan, Uzma Tabassam, **Yasir Ali** and Ali Zaman Analysis of pT spectra for ϕ(1020)0 mesons in Cu–Au collisions at 200 GeV, using PYTHIA and Tsallis function, Chinese Journal of Physics, 89, 227-235, issn 0577-9073, 2024, https://doi.org/10.1016/j.cjph.2024.03.002*

- *Naseebullah, Olimov, K.K., Khan, I. **Y. Ali** et al. Analysis of production of Σ(1385)±, Ξ(1530)0 and their anti-particles in inelastic pp collisions at = 7 TeV. Eur. Phys. J. Plus 138, 556 (2023). https://doi.org/10.1140/epjp/s13360-023-04190-z*

- *Q. Ali, **Y. Ali**, S. Bashir, et al. Distributions of the nuclear modification factor of pions, kaons and protons in the most central Pb–Pb collisions at = 2.76 TeV. Eur. Phys. J. Plus 138, 749 (2023). https://doi.org/10.1140/epjp/s13360-023-04351-0*

- *Naseebullah, **Y.Ali** & I. Khan, Models predictions for the transverse momentum spectra of strange particles produced in collisions at 7 and 13 TeV. Eur. Phys. J. Plus 138, 1098 (2023). https://doi.org/10.1140/epjp/s13360-023-04671-1*

- *A. Khan, T. Khurshid, T., **Y. Ali**, et al. Monte Carlo predictions for and mesons production in pp and Pb–Pb collisions at LHC energies. Eur. Phys. J. Plus 138, 680 (2023). https://doi.org/10.1140/epjp/s13360-023-04324-3*

- *U. Tabassam, **Y. Ali** and Khusniddin K. Olimov Study of multiplicity dependence in Charmed Hadrons production in pp collisions at LHC energies, Eur. Phys. J. Plus (2023)138:367 https://doi.org/10.1140/epjp/s13360-023-03976-5*

- *A. Khan, S. Shafaq, T. Khurshid, **Y.Ali** and Z. Abidin, Study of K^{*} (892)0 and φ(1020)0 meson production in p − p, p −Pb and Pb − Pb collisions at LHC Energies Eur. Phys. J. Plus (2023) 138:258 https://doi.org/10.1140/epjp/s13360-023-03870-0*

- ***Y.Ali,*** *A. Kainat, A.Arif and H. Zeenat Study of D0 , D+ , D ∗ + and Ds+ mesons production in p-Pb collision at 5.02 TeV, Eur. Phys. J. Plus (2022) 137:1286* *https://doi.org/10.1140/epjp/s13360-022-03422-y*

- *Atif Arif.* ***Y.Ali*** *and Mahnaz Q. Haseeb, Comparison of strange particle production measurements in central Pb–Pb collisions at 2.76 and 5.02 TeV by using Monte Carlo simulation models EPOS-1.99 and EPOS-LHC, Eur. Phys. J. Plus 137:512 (2022) https://doi.org/10.1140/epjp/s13360-022-02739-y*

- *U. Tabassam….* ***Y. Ali*** *The production of φ mesons at SPS, RHIC and LHC energies Eur. Phys. J. Plus 137:255 (2022)* *https://doi.org/10.1140/epjp/s13360-022-02489-x*

- ***Y. Ali*** *, H.Zeenat, et al. Study of charm Λ+c baryon production in pp and p–Pb collisions at 5.02 TeV, Eur. Phys. J. Plus137, 209 (2022). DOI: 10.1140/epjp/s13360-022-02375-6*

- *A.Arif and* ***Y. Ali*** *, Transverse momentum and pseudo-rapidity density distributions of charged particles produced i n pp and Au-Au Collisions at 200 GeV, Published in Eur.Phys.J.Plus 136 (2021) 9, 951 DOI: 10.1140/epjp/s13360-021- 01928-5*

- *A. Arif,* ***Y. Ali,*** *M. Haseeb, et al. Study of transverse momentum and nuclear modification factors distribution of charged particles produced in pp and Pb–Pb collisions at sNN = 2.76 TeV and 5.02 TeV, Published in: Int.J.Mod.Phys.E 30 (2021) 08, 2150068, DOI: 10.1142/S0218301321500683*

- *U. Tabassam,* ***Y. Ali*** *et al. Study of strange particles production in pp and p-Pb collisions at 7 TeV, Published in: Eur.Phys.J.Plus 136 (2021) 7, 793, DOI: 10.1140/epjp/s13360-021-01698-0*

- *A. Arif,* ***Y. Ali*** *and M. Haseeb, Monte-Carlo models prediction for π±,k±,protons and antiprotons production in pp and Pb–Pb collisions at 2.76 TeV,Published in: Eur.Phys.J.Plus 136 (2021) 7, 737 DOI:10.1140/epjp/s13360-021-01717-0*

- ***Y. Ali*** *U.Tabassam et al. Ψ(2S) and J/psi production in pp collisions at 7, 8 and 13 TeV , Published in: Turk.J.Phys. 45 (2021) 2, 90-104, DOI:10.3906/fiz-2012-8*

- *A. Arif,* ***Y. Ali*** *M. Haseeb et al. Study of Strange Particle Production in Central Pb-Pb Collisions at 2.76 Te V, Published in: Journal of Physics & Optics Sciences 2 (2021) 4, 1-6*

- ***Y. Ali*** *et al. Study of K*(892)0 and ф(1020) meson production in proton–proton and Pb–Pb collisions at sNN = 2.76 TeV, Published in Commun. Theor. Phys.73 025202 (2021).*

- *Q. Ali ,****Y. Ali*** *et al. Distribution of strange particles transverse momentum and rapidity in high energy proton–proton collisions at√s = 0.9 TeV at LHC, Published in Mod. Phys. Lett. A,, Vol. 33, No. 1 (2020) 2050006 (9 pages),*

- *M Ajaz, R Khan, M Bilal,* ***Y. Ali*** *et al. Models prediction of particles ratio in pp collisions at √s = 900 GeV, Published in Indian J Phys (2020) 94(5):719–724,*

- *M. Ajaz, M. Tufail, and* ***Y. Ali*** *, Study of the Production of Strange Particles in Proton–Proton Collisions at √s = 0.9 TeV, Published in Arabian Journal for Science and Engineering, 45,411–416(2020).*

- *M. Ajaz, R. Khan , **Y. Ali** and M. Suleymanov, Testing of model predictions of forward energy flow in pp collisions at √s = 7 TeV, Published in Modern Physics Letters A Vol. 35, No. 2 (2020) 1950349*

- ***Y. Ali** , Q. Ali, M. Haseeb, M. Ajaz & U. Tabassam, Study of Pseudorapidity and Transverse-Momentum Distributions of Charged Particles in pp Interactions at √s = 13 TeV Using Hadron Production Models, Published in: Int J Theor Phys (2019) DOI 10.1007/s10773-018-3985-y*

- *R. Khan, M. Ajaz & **Y. Ali** , Transverse Momentum Distributions of Pions, Kaons and Protons in p − p Interactions at 2.76 TeV, Int J Theor Phys (2019), DOI 10.1007/s10773-019-04085-9*

- *M.Ajaz, I. Khan, **Y. Ali** et,al. Charged Particles pT Spectra and the Correlation between p_T and all Charged Particles at √S = 900 GeV, Int J Theor Phys (2019), DOI 10.1007/s10773- 019-04096-6*

- *M. Ajaz, M. Tufail, and **Y. Ali** Study of the Production of Strange Particles in Proton–Proton Collisions at √s = 0.9 TeV, Arab J Sci Eng (2019). https://doi.org/10.1007/s13369-019-04224-8*

- *R.Khan, M.Ajaz, **Y. Ali** H. Younis, et,al Model Predictions of Charged-Particle Azimuthal Distributions and Forward-Backward Correlations in pp Interactions at √ s = 900 GeV Commun. Theor. Phys. 71 (2019) 1172–1178 Vol. 71, No. 10, October 1, (2019).*

- *Q. Ali , **Y. Ali** et al. Distribution of strange particles transverse momentum and rapidity in high energy proton–proton collisions at√s = 0.9 TeV at LHC Mod. Phys. Lett. A,, Vol. 33, No. 1 (2020) 2050006 (9 pages), DOI: 10.1142/S0217732320500066*

- *Q. Ali , **Y. Ali** ,et,al. Distributions of charged particles' transverse momentum and pseudorapidity in pp collisions at 0.9 TeV Pis'ma v ZhETF, vol. 109, iss. 8, pp. 507 – 508 DOI: 10.1134/S0370274X19080010*

- *Q. Ali , **Y. Ali** et,al. Distributions of the Transverse Momentum and Pseudorapidity of Charged Particles in pp Collisions at 0.9 TeV JETP Letters, 2019, Vol. 109, No. 8, pp. 495–498. (2019).*

- *M.Ajaz, R.Khan, **Y. Ali** , M. K. Suleymanov et,al. Testing of model predictions of forward energy flow in pp collisions at s = 7 TeV Mod. Phys. Lett. A,,(2019) https://doi.org/10.1142/S0217732319503498*

- *M. Ajaz , **Y. Ali** , et,al. Study of Hadrons Produced in Proton–Carbon Interactions at 120 GeV/c Using Hadron- Production Models, Physics of Atomic Nuclei, 2019, Vol. 82, No. 3,pp. 291–298. (2019).*

- *M.Ajaz, M.Bilal, **Y. Ali** , S. Ullah et al ,Study of pion kaon and proton in proton carbon interactions at 158 GeV/c using hadron production models, Mod. Phys. Lett. A,, Vol. 34, No.10 (2019) 1950078 (10 pages), DOI: 10.1142/S0217732319500780*

- ***Y. Ali*** *, M. K. Suleymanov, et,al. Models prediction of hadrons production ratios in pp collisions at √s = 7 TeV, Mod. Phys. Lett A, Vol. 34, No. 13 (2019) 1950090 (13 pages), DOI: 10.1142/S0217732319500901*

- *M.Ajaz, M.Tufail, and* ***Y. Ali*** *Production oflight flavored charged hadron in pp collisions at 900 GeV with hadron production models, Mod. Phys. Lett. A,, Vol. 34, No. 13 (2019) 1950100 (7 pages), DOI: 10.1142/S0217732319501001*

- *Q.Ali,* ***Y. Ali*** *et,al.Transverse momentum and nuclear modification factor distributions of charged particles in p+ Pb and p + p collisions at sNN = 5.02 TeV, Mod. Phys. Lett. A,, Vol. 34, No. 16 (2019) 1950120 (9 pages), DOI: 10.1142/S0217732319501207*

- *S. Ullah, M.Ajaz, Z. Wazir,* ***Y. Ali*** *et al. Hadron production models' prediction for pT distribution of charged hadrons in pp interactions at 7TeV. Sci Rep 9, 11811 (2019) doi:10.1038/s41598-019-48272-4*

- *M.Ajaz...****Y. Ali*** *et al. Comparison of hadron production models for π ± , k ± , protons and antiprotons production in proton-carbon interactions at 60 GeV/c, Published in Mod. Phys. Lett. A, Vol. 33, No. 6 (2018) 1850038 , DOI: 10.1142/S0217732318500384.*

- *U. Tabassam,* ***Y. Ali*** *et al. Observation of universality for high pT distribution at LHC energies. Published in Int.J.Mod.Phys. E 27 (2018) No. 4, 1850036 DOI: 10.1142/S0218301318500362*

- *M.Ajaz,****Y. Ali*** *et al. Comparison of different hadron production models for the study of π ± , k ± ,protons and antiprotons production in proton-carbon interactions at 90 GeV/c Published in Mod. Phys. Lett. A,, Vol. 33, No. 14 (2018) 1850079 , DOI:10.1142/S0217732318500797*

- *U.Tabassam,* ***Y. Ali*** *,etal. The Production of π±,k±, protons and antiprotons in p-Pb collisions at.√sNN=5.02 TeV Published in Mod. Phys. Lett. A,, Vol. 33, No. 17 (2018) 1850094 , https://doi.org/10.1142/S0217732318500943*

- *S.Ullah,* ***Y. Ali*** *etal.π±, k±, protons and antiprotons production inproton-carbon interactions at 31GeV/c using hadron production models Published in Int.J.Mod.Phys. A Vol. 33 No.17, (2018) 1850108 https://doi.org/10.1142/S0217751X18501087*

- *S.Ahmad, M. Ajaz ,* ***Y. Ali*** *, Measurement of indoor radon concentration in district Mardan, Khyber Pakhtunkhwa, Pakistan. Published in Nucl. Phys. At. Energy volume 19, issue 2, pages 190-195.(2018). https://doi.org/10.15407/jnpae2018.02.190*

- *S. Ullah, M. Ajaz,* ***Y. Ali*** *Spectra of strange hadrons and their role in neutrinos flux Prediction. Published in EPL, 123 (2018) 31001. doi: 10.1209/0295-5075/123/31001.*

- *Q.Ali ,* ***Y. Ali*** *et al. Study of transverse momentum distributions in p - Pb interactions at 0.9 TeV and 5.02 TeV Published in Mod. Phys. Lett. A,, Vol. 33, No. 31 (2018) 1850179 , DOI: 10.1142/S0217732318501791*

- ***Y. Ali*** *, et al. Comparison study of the pT distributions of the charged particles in p–Pb interactions at LHC energies (COMSATS, Islamabad). 2017. 9 pp. Published in Mod.Phys.Lett. A 32 (2017) No.31, 1750167 DOI: 10.1142/S021773231750167X*

- ***Y. Ali*** *, et al. Transverse momentum distribution of primary charged particles in p–Pb interactions at forward pseudorapidity at LHC energies (COMSATS, Islamabad). 2017. 9 pp. Published in Int.J.Mod.Phys. E 26 (2017) No.04, 1750021 DOI: 10.1142/S0218301317500215*

- *U. Tabassam,* ***Y. Ali*** *et al. Transverse momentum distribution of primary charged particles in the p–Pb interactions using HIJING 1.0, (COMSATS, Islamabad). 2016. 8 pp. Published in Int.J.Mod.Phys. A 31 (2016) no.24, 1650136 DOI: 10.1142/S0217751X16501360*

- ***Y. Ali*** *, P. Staszel, et al. Feasibility Studies of Open Charm Measurements with the NA61/SHINE Experiment at CERN- SPS, Published in Acta Phys.Polon. B 44 (2013) no.10, 2019-2034, DOI: 10.5506/AphysPolB.44.2019.*

Conference Publications

- *Deveaux, A. Aduszkiewicz, Y. Ali, et al. The Small Acceptance Vertex Detector of NA61/SHINE Published in EPJ Web of Conferences 171, 21001 (2018) https://doi.org/10.1051/epjconf/201817121001*

- ***Y. Ali****, P. Staszel, Charm quarks as a probe of matter produced in relativistic nucleus-nucleus collisions, Published in EPJ Web Conf. 71 (2014) 00004 DOI: 10.1051/epjconf/20147100004*

- ***Y. Ali****, P. Staszel, et al. NA61/SHINE experiment upgrade with vertex detector for open charm measurements NA61/SHINE Collaboration. Published in J.Phys.Conf.Ser. 509 (2014) 012083. DOI: 10.1088/1742-6596/509/1/012083*

- ***Y. Ali****, P. Staszel, Future Vertex Detector for Measurements of Open Charm with the NA61/SHINE Experiment at CERN-SPS, Published in Acta Phys.Polon.Supp. 6 (2013) no.4, 1081-1084. DOI: 10.5506/AphysPolBSupp.6.1081*

- *M. Rybczynski..* ***Y. Ali****,.. et al. Energy dependence of identified hadron spectra and event-by-event fluctuations in p+p interactions from NA61/SHINE at the CERN SPS NA61/SHINE Collaboration Jan 2013. 8 pp. Published in PoS Confinement X (2012) 207 Conference: C12-10-08.1 Proceedings e-Print: arXiv:1301.3360 [nucl-ex]*

Complete and updated List of Publications including Publications from ALICE and NA61/SHINE Collaborations are available at:

https://inspirehep.net/authors/1487654?ui-citation-summary=true

Professional References

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