Yasir Ali, PhD

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PROFILE

- 8 Years of Post-PhD Teaching Experience at Under-graduate and Graduate Level.
- 8 Years of Research Experience in the area of Experimental High Energy Physics in well Known Research Labs around the World.
- Technology focused and passionate problem solver with strong technical expertise.
- Multi-disciplinary scientist with collaborative research and data analysis experience at premiere high energy physics laboratories and institutes around the world.
- Penchant for teaching undergraduate and graduate physics.
- Adept in leading and playing key role in cross-functional collaboration of development and operations with effective communication and interpersonal skills and work ethics.

Education:

- PhD in Physics, Jagieollonian University, Krakow Poland, 2011-2015.
  Thesis: “Feasibility studies for open charm measurements with NA61/SHINE experiment at CERN-SPS using new dedicated Vertex Detector.”,

- Masters by Research degree in Physics, University of Manchester, Manchester UK, 2008-2010.
  Thesis: “Surface Studies of Quantum dot based Photovoltaics.”.

- Bachelors Degree in Electronics, COMSATS University Islamabad, Islamabad Pakistan, 2003-2007.
  Thesis: Development of Adhoc Wireless Netoworks.

Professional Appointments:

- **Post-Doctoral Research Fellow** at AGH University Krakow Poland.
  January 2023 – September 2023

Project is based on the Design and Simulation studies of 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

- **Tenured Associate Professor** at Physics Department COMSATS University Islamabad Pakistan
  April 2022 — Present

Responsibilities are the Teaching to Under-graduate and Graduate Students, Supervision of Bachelors, Masters and PhD Students, Conducting Research and writing research Publications. Research area is Experimental High Energy Physics.

- **Post-Doctoral Research Fellow** at University of Hawaii, Honolulu USA. January 2019 - June 2019.

Project was based on the circuit board design and firmware development for implementation of the Si-READ ASIC readout of a ring-imaging detector prototype in the context of eRD-14 project for a future Electron-Ion Collider experiment.

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

Responsibilities were the teaching to Undergraduate and Graduate students.
During this period I had Supervised and Co-Supervised Masters and PhD Student thesis and Worked on the Research Projects related to the Simulations and Data analysis for the Study of Quark Gluon Plasma in Hadron-Hadron and Heavy Ion Collisions at LHC and RHIC energies.

- **Lecturer** at Physics Department COMSATS University Islamabad Pakistan 2010 - 2011

As a Lecturer I taught Courses of Microprocessors, Very Large Scale Integrated Circuits and Basic Electronics to Undergraduate Students.

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

As a Research Associate I Worked in the field of Material Sciences on the Synthesis and Characterization of Nano-materials like FeO and ZnO. I used Several Characterization Techniques like X-ray Diffraction, Vibration Sensing Magnetometer, Scanning Electron Microscope, Ball Milling Machine, Box and Tube Furnaces etc.
The goal was the Nano-materials synthesis and Characterization for Medical and Industrial Applications.

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.

Research Projects:

- Working on the 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.

- Currently working on the 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.
- 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.
- Conducted 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 and alignment 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).

Membership of International Collaborations:

- Member of the ALICE Collaboration, at the Large Hadron Collider (LHC) at CERN, Geneva, Switzerland.
- Served as a Shift Leader at the ALICE Control Room, overseeing operations for the ALICE experiment at CERN, Geneva, Switzerland.
- Member of the NA61/SHINE Collaboration from 2011 to 2015.

Teaching and Supervision:

Having 8 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

a) Heavy Ion Physics
b) Particle Physics
c) Graduate Lab

1) PhD Students research Projects:

- 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 Some Characteristics of Secondary Charged Particles Produced in Hadron-hadron and Nucleus-Nucleus collisions at LHC and RHIC energies.

2) Masters Students research Projects:

- 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
- ψ(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.

Software Skills:

- Scientific/Statistical tools: ROOT, GEANT4, EIC/EPIC data analysis framework, ALI-ROOT (ALICE Physics analysis) and Origin,
- Language Skills: C/C++, Python, FORTRAN, Basic VHDL/Verilog, Fortran, MS Office.
- Good Hands on Experience on Monte-Carlo simulation codes HIJING, PYTHIA, CRMC codes like EPOS, EPOS-LHC, QGSJET, SIBYLL, and DPMJET etc
- Good Experience of working with Linux (Debain and ubuntu distributions) and Windows Operating systems, MS Office, Latex
- PCB Design Software's: ALTIUM, and OrCAD, PSPICE

Talks in Conferences/Workshops:

- 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, United Kingdom.
- International Conference on New Frontiers in Physics, From 28 August 2013 to 5 September 2013 (Europe/Athens) Kolymbari, Crete, Greece.
- Symposium on applied nuclear physics and innovative technologies. September 24th to 27th,2014, Jagiellonian University, Kraków Poland.
- Workshop on Monte-Carlo Simulations-Applications in Science and Technology, May 15-17, 2017, PINSTECH NILORE Islamabad, Pakistan.
- Invited as a Speaker at the Workshop on Monte-Carlo Simulations-Applications in Science and Technology, May 15-17, 2017, PINSTECH NILORE Islamabad, Pakistan.

- Invited as a Speaker at the Department of Physics, Faculty of Physical and Numerical Sciences, Abdul Wali Khan University Mardan, 29th November 2017.

- Invited as 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.

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

Scientific Publications:

- 44 Published papers in impact factor Journals
- 10 Journal Publications with NA61/SHINE Collaboration
- 189 Journal Publications with ALICE Collaboration
- 5 Conference Proceedings
- Complete and updated List of Publications are available at: https://inspirehep.net/authors/1487654?ui-citation-summary=true

Publications:

in the list from Year (2023 – 2013):

- 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 ϕ(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 pT 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 Rep9, 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 a t 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]

PROFESSIONAL REFERENCES:

• Available upon request