CURRICULUM VITÆ

January 18, 2024

Personal Profile

Name:	Supriya Das
Born / Sex:	February 22, 1974 / Male
Marital / Nationality:	Married / Indian
Present Position:	Professor
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Academic Profile

Areas of Research: Relativistic Heavy Ion Collisions, Quark Gluon Plasma
Particle Detection Techniques
Cosmic Ray Air Shower

Research Positions:

February 2020 - Present:	Professor Bose Institute, Kolkata, India.
January 2015 - February 2020:	Associate Professor Bose Institute, Kolkata, India.
October 2010 - December 2014:	Assistant Professor Bose Institute, Kolkata, India.
December 2008 - October 2010:	Research Scientist Bose Institute, Kolkata, India.
December 2007 - November 2008:	Research Associate Saha Institute of Nuclear Physics, Kolkata, India.
October 2005 - November 2007:	Visiting Scientist (Post-doctoral) Gesellschaft für Schwerionenforschung mbH (GSI), Darmstadt, Germany.
February 2002 - September 2005:	Senior Research Fellow Variable Energy Cyclotron Centre, Kolkata, India.
February 2000 - January 2002:	Junior Research Fellow Variable Energy Cyclotron Centre, Kolkata, India.

Academic Records:

2007	Ph.D. (Science) , Advisor: Dr. Yogendra Pathak Viyogi Jadavpur University, Kolkata, India. (Work done at Variable Energy Cyclotron Centre, Kolkata, India)
1998	M.Sc., in Physics University of Calcutta, Kolkata, India.
1995	B.Sc. (Honours), in Physics University of Calcutta, Kolkata, India.

Other awards:

1999	Qualified in Graduate Aptitude Test in Engineering (GATE)
1999	Qualified in CSIR-UGC NET for Junior Research Fellowship

Projects and Collaborations:

Extramural Projects (DST, CSIR, DAE *etc.*):

1. Principal Investigator in "Indian Participation in ALICE Experiment at CERN", joint collaborative project of DAE and DST, Govt. of India (Continuing)
2. Co-Principal Investigator in "CBM - MUCH", Granted from BI - IFCC (DST), Govt. of India (Completed)
3. Principal Investigator in "ALICE - Upgrade, Operation and Utilization", XIIth. plan joint collaborative project of DAE and DST, Govt. of India (Completed)
4. Co-investigator in "Study of Cosmic ray interactions and Cosmic Ray Aerosol Cloud connection in the context of regional climate change", DST, Govt. of India (Completed)
5. Co-Principal Investigator in "ALICE - Operation and Maintenance", XIth. plan joint collaborative project of DAE and DST, Govt. of India (completed)

Collaborations:

Involved in the following international collaborations

- A Large Ion Collider Experiment (ALICE)
- Compressed Baryonic Matter (CBM)

Academic Activities:

Past research:

I worked on fabrication, testing and commissioning of the Photon Multiplicity Detector (PMD) at the STAR experiment at Relativistic Heavy Ion Collider (RHIC), BNL, USA. Each of the two layers of this 1 m^2 detector consists of closely packed hexagonal proportional gas detectors of area $1cm^2$ and thickness $1cm$. A $3X_0$ lead block sandwitched between these two layers acts a photon converter. A 16 channel ASIC named GASSIPLEX was used as the Front End readout for this detector. This detector sits at the forward rapidity of the experiment and the only device that gives the photon count from the collision in that region. The data obtained using this detector resulted in the finding that the photons follow limiting fragmentation at that energies (Phys. Rev. Lett. **95**, 62301 ; Nucl. Phys. **A 832**, 134).

I studied the event by event fluctuation in K/π ratio in nucleus-nucleus collisions at relativistic energies. The charged particle data obtained by the Time Projection Chamber (TPC) at the STAR experiment were used for this study. Results of K/π fluctuations in Au+Au collisions at RHIC energy range was reported for the first time from this study (Phys. Rev. Lett. **103**, 092301).

I was also involved in the development of a Ring Imaging Cherenkov Detector for electron identification and di-electron spectroscopy at the Compressed Baryonic Matter (CBM) at the Facility for Antiproton and Ion Research (FAIR), Darmstadt, Germany (Nucl. Inst. and Meth. **A 595**, 187 ; Indian J. of Physics **85** (1), 81).

Current research:

Currently I am involved in the following research activities:

- **Hadron production at high baryon densities:** Study of hradon production will help us to understand and characterise the matter produced at high baryon densities as expected in the CBM experiment at FAIR. Here the hadrons will be detected and identified using tracking and Time of Flight techniques. Hadronic propoerties and their modification are within the scope of research in this area.
- **Charged jet measurements using ALICE data:** Jets are reconstructed using the charged particles produced in hadronic as well as heavy-ion collisions recorded in the TPC in ALICE experiment at LHC. The study for the hadronic collisions will not only provide crucial information to test the pQCD at this energy range but the results from this study will also serve as a baseline for the measurements in heavy-ion collisions.
- **Development of the GEM chambers for the MuCh detector at CBM:** CBM will use GEM technology to fabricate the first few stations of their Muon Detection system keeping in mind the high particle density as well as very high interaction rate. Triple GEM chambers of dimention 1m x 1.5m in hexagonal shape will be fabricated for this.
- **Cosmic ray studies at mountain altitude :** An array of active detectors to detect the cosmic ray air shower at Darjeeling is under development. Each element of this array will consist of $1m \times 1m \times 1cm$ plastic schintillator coupled with fast Photo Multiplier Tube. This study will provide answers to several questions regarding the energy spectrum near the so called 'knee region', direction of primary cosmic rays *etc.*

Doctoral students supervised:

1. Rudrapriya Das, University of Calcutta, in progress
2. Md. Asif Bhat, University of Calcutta, in progress
3. Shreya Roy, University of Calcutta, 2023
4. Rathijit Biswas, University of Calcutta, 2021 (Jointly with Prof. Sibaji Raha, Bose Institute)
5. Rama Prasad Adak, University of Calcutta, 2018 (Jointly with Prof. Sanjay K. Ghosh, Bose Institute)
6. Subhasis Samanta, University of Calcutta, 2017 (Jointly with Prof. Sibaji Raha, Bose Institute)

Teaching / Outreach:

Teaching both in M.Sc. and doctoral course work at Bose Institute.

Involved in organization and participation in various seminar, conference and outreach programs of Bose Institute especially in the Winter School and Workshop on Astroparticle Physics (WAPP series).

Organizational activities :

- Convenor, FAIR Experiment Evaluation Committee (FEEC), 2022 -
- Co-Convener, CBM Hadron Physics Working Group (PWG), 2020 -
- Deputy Spokesperson, ALICE-India Collaboration, 2016 - 2020
- Member, Local Organizing Committee, 34th. CBM Collaboration Meeting, 2019, Kolkata, India
- Member, Local Organizing Committee, International Workshop on Jet and Forward Physics, 2019, Kolkata, India
- Member, Local Organizing Committee, Advanced Detectors for Nuclear, High Energy and Astroparticle Physics, 2017, Kolkata, India
- Convenor, Organizing Commitee, Workshop on detectors for FAIR, 2016, Puri, India
- Convenor, Local Organizing Commitee, 10th. Winter School and Workshop in Astroparticle Physics (WAPP 2015), 2015, Darjeeling, India
- Member, Local Organizing Committee, International Workshop on Advanced Detector, 2014, Kolkata, India
- Member, Local Organizing Committee, International Conference of Matter at Extreme Conditions : Then and Now, 2014, Kolkata, India
- Joint Convenor, Local Organizing Committee, 8th. Winter School and Workshop on Astroparticle Physics (WAPP 2011), 2011, Darjeeling, India

Membership in professional societies:

Life Member - Indian Physical Society (Member, Governing council since 2014)

List of Publications:

A. Peer Reviewed Journals:

A.1. **Jet modification in absence of QGP-medium: the role of multiparton interactions and color reconnection**
Prottoy Das, Abhi Modak, Debjani Banerjee, Rathijit Biswas, Supriya Das, Sanjay K. Ghosh, Sibaji Raha and Sidharth Kumar Prasad
Published in Chinese Journal of Physics **C 48** (2024) 013105
DOI: https://doi.org/10.1088/1674-1137/ad0b6c

A.2. **Charging-up effect and uniformity study of a single mask triple GEM detector**
S. Chatterjee, A. Sen, S. Das, S. Biswas
Published in Nucl. Instr. and Meth **A 1049** (2023) 168110
DOI: https://doi.org/10.1016/j.nima.2023.168110

A.3. **A new technique of linseed oil coating in bakelite RPC and the first test results**
A. Sen, S. Chatterjee, S. Das, S.K. Ghosh and S. Biswas
Published in Nucl. Instr. and Meth **A 1024** (2022) 166095
DOI: https://doi.org/10.1016/j.nima.2021.166095

A.4. **Study of charging up effect in single mask triple GEM detector**
S. Chatterjee, A. Sen, S. Das, S.K. Ghosh, S. Biswas
Published in Nucl. Instr. and Meth **A 1014** (2021) 165749
DOI: https://doi.org/10.1016/j.nima.2021.165749

A.5. **Attenuation of electromagnetic radiation in Nuclear Track Detectors**
R. Bhattacharya, A. Maulik, R.P. Adak, S. Roy, T.S. Bhattacharya, S. Biswas, S. Das, S. Dey, S.K. Ghosh, K. Palodhi, S. Raha, A. Singha and D. Syam
Published in JINST **16** (2021) T06001
DOI:https://doi.org/10.1088/1748-0221/16/06/T06001

A.6. **Cosmic ray flux and lockdown due to COVID-19 in Kolkata - Any correlation?**
A. Sen, S. Chatterjee, S. Roy, R. Biswas, S. Das, S. K. Ghosh and S. Biswas
Published in Pramana - J. Phys **95**:64 (2021)
DOI: https://doi.org/10.1007/s12043-021-02106-z

A.7. **Stability study and time resolution measurement of straw tube detectors**
S. Roy, S. Jaiswal, S. Chatterjee, A. Sen, S. Das, S. K. Ghosh, S. Raha, V. M. Lysan, G. D. Kekelidze, V. V. Myalkovsky, S. Biswas
Published in Pramana - J. Phys **95**:50 (2021)
DOI: https://doi.org/10.1007/s12043-021-02094-0

A.8. **A study of the secondary cosmic gamma-ray flux in India during the Great American solar eclipse on 21st August 2017**
S. Roy, S. Biswas, S. Das, S.K. Ghosh, S. Raha
Published in Astrophysics and Space Science **365** (2020) 172
DOI:https://doi.org/10.1007/s10509-020-03886-3

A.9. **Study of charging up effect in a triple GEM detector**
S. Chatterjee, A. Sen, S. Roy, K. Nivedita G, A. Paul, S. Das, S. Biswas
Published in JINST **15** (2020) T09011
DOI:https://doi.org/10.1088/1748-0221/15/09/T09011

A.10. **Study of jet-medium interactions using jet shape observables in heavy ion collisions at LHC energies with JEWEL**

Rathijit Biswas, Subikash Choudhury (Fudan University), Sidharth K. Prasad and Supriya Das
Published in J. Phys. G : Nucl. Part. Phys. **46** (2019) 095004
DOI:https://doi.org/10.1088/1361-6471/ab2e69

A.11. **Investigating the particle production at intermediate p_T using identified triggered correlation in pp collisions at $\sqrt{s}$ = 7 TeV**
Debojit Sarkar (Wayne State University), Supriya Das and Subhasis Chattopadhyay (Variable Energy Cyclotron Centre)
Published in Nucl. Phys. **A989**, 13-20 (2019)

A.12. **Particle identification studies with a full-size 4-GEM prototype for the ALICE TPC upgrade**
M. M. Aggarwal *et al.*
Published in Nucl. Instr. Meth. **A903** (2018) 215
DOI:https://doi.org/10.1016/j.nima.2018.06.084

A.13. **Centrality dependence of chemical freeze-out parameters from net-proton and net-charge fluctuations using a hadron resonance gas model**
Rama Prasad Adak, Supriya Das, Sanjay K. Ghosh, Rajarshi Ray and Subhasis Samanta
Published in Phys. Rev. **C96** (2017), 014902
DOI: 10.1103/PhysRevC.96.014902

A.14. **Development of scintillator detector for detection of cosmic ray shower**
Saikat Biswas, Supriya Das, Sanjay K. Ghosh, Dipanjan Nag, Sibaji Raha
Published in JINST **12** (2017), C06026
DOI: 10.1088/1748-0221/12/06/C06026

A.15. **Design and fabrication of data logger to measure the ambient parameters in gas detector R&D**
S. Sahu (Institute of Physics), D. Nag, S. Rudra (University of Calcutta), S. Swain (Institute of Physics), S. Biswas, S. Das, P.K. Sahu (Institute of Physics)
Published in JINST **12** (2017) C05006
DOI: 10.1088/1748-0221/12/05/C05006

A.16. **Long-term stability test of a triple GEM detector**
R.P. Adak, S. Biswas, S. Das, D. Ghoshal, S. K. Ghosh, A. Mondal, D. Nag, T. K. Nayak (Variable Energy Cyclotron Centre), R. N. Patra (Variable Energy Cyclotron Centre), S. Raha, P.K. Sahu (Institute of Physics), S. Sahu (Institute of Physics), S. Swain (Institute of Physics)
Published in JINST **11** (2016) T 10001
DOI: 10.1088/1748-0221/11/10/T10001

A.17. **Fluctuations and correlations of conserved charges in an excluded volume hadron resonance gas model**
Abhijit Bhattacharyya (Calcutta U.), Supriya Das, Sanjay K. Ghosh, Rajarshi Ray, Subhasis Samanta (CAPSS, Kolkata & Bose Inst., Kolkata). Oct 10, 2013. 15 pp.
Published in Phys.Rev. **C90** (2014) no.3, 034909
DOI: 10.1103/PhysRevC.90.034909
e-Print: arXiv:1310.2793 [hep-ph]

A.18. **Centre of mass energy and system-size dependence of photon production at forward rapidity at RHIC**
B.I. Abelev *et al.* (STAR collaboration)
Published in Nucl. Phys. **A** 832 (2010), 134
DOI : 10.1016/j.nuclphysa.2009.11.011

A.19. **K/π Fluctuations at Relativistic Energies**
B.I. Abelev *et al.* (STAR collaboration)

Published in Phys. Rev. Lett. **103** (2009), 092301
DOI : 10.1103/PhysRevLett.103.092301

A.20. **Experimental and theoretical challenges in the search for the quark gluon plasma: The STAR Collaboration's critical assessment of the evidence from RHIC collisions**
J. Adams *et al.* (STAR collaboration)
Published in Nucl. Phys. **A 757** (2005), 103
DOI : 10.1016/j.nuclphysa.2005.03.085

A.21. **ALICE Physics Performace Report: Volume I**
ALICE Collaboration
Published in J. Phys. G: Nucl. and Part. Phys **A 30** (2004), 11

A.22. **The STAR Photon Multiplicity Detector**
M.M. Aggarwal *et al.*
Published in Nucl. Inst. and Meth. **A** 499 (2003), 751
DOI : 10.1016/S0168-9002(02)01972-1

For other publications as member of STAR and ALICE collaboration, please look at HEP-INSPIRE.

B. Proposals / Internal Notes:

B.1. **Technical Design Report for the CBM : Muon Chambers (MuCh)**
CBM Collaboration
GSI-2015-02580, 2015

B.2. **ALICE : Addendum to the Technical Design Report of Photon Multiplicity Detector (PMD)**
ALICE Collabration
CERN-LHCC-2003-038, Sep 2003

B.3. **Test results of ALICE PMD Prototypes**
M.M Aggarwal *et al.*
ALICE-INT-2001-039, Dec 2002

B.4. **Photon Multiplicuty Detector** (for STAR experiment) - Revised Technical Proposal
M.M. Aggarwal *et.al*
VECC/EQG/01-01, 2001

B.5. **Photon Multiplicity Detector** (for STAR experiment) - Technical Proposal
M.M. Aggarwal *et.al*
VECC/EQG/00-04, 2000

D. Doctoral Thesis:

D.1. **Study of photon production and event by event fluctuation in Au+Au collisions at RHIC energies**
Supriya Das
Published in Ph.D. Thesis (2007) at Variable Energy Cyclotron Centre / Jadavpur University, Kolkata, India

E. Edited volume:

E.1. **Advanced Detectors for Nuclear, High Energy and Astroparticle Physics**
Edited by Saikat Biswas, Supriya Das and Sanjay K. Ghosh
Springer Proceedings in Physics, 201; ISBN: 978 981 10 7664 0

F. Books:

F.1. **"Snatak Parixagare Padarthavidya"** (in Bengali)
Dr. Supriya Das and Dr. Mili Das
ISBN : 978 93 86911 26 1

F.2. **Physics in Laboratory**
Dr. P. K. Mandal, Dr. S. Chowdhury, Dr. Supriya Das and Dr. Mili Das
ISBN : 978 93 86911 31 5

G. Proceedings:

G.1. **Study of gain variation as a function of physical parameters of GEM foil**
Supriya Das (for the ALICE collaboration)
Published in Nucl. Inst. and Meth. **A** 824 (2016) 518-520
DOI : 10.1016/j.nima.2015.11.078
Conference : 13th. Pisa Meeting on Advanced Detectors, 2015

G.2. **"Soft" and "hard" interactions in proton-proton collisions at LHC energies**
Sidharth K. Prasad, Supriya Das, Sanjay K. Ghosh (CAPSS, Kolkata), Premomoy Ghosh, Sanjib Muhuri, Tapan K. Nayak (Calcutta, VECC), Rajarshi Ray (CAPSS, Kolkata). 2015. 4 pp.
Published in Proc.Indian Natl.Sci.Acad. 81 (2015) no.1, 213-216
DOI: 10.16943/ptinsa/2015/v81i1/48071
Conference: C14-01-15 Proceedings

G.3. **Study of D- measure from Polyakov-Nambu-Jona-Lasinio model**
Abhijit Bhattacharyya (Calcutta U.), Supriya Das, Sanjay K. Ghosh, Sibaji Raha, Rajarshi Ray, Kinkar Saha, Sudipa Upadhaya (Bose Inst., Kolkata & CAPSS, Kolkata). 2015. 6 pp.
Published in Proc.Indian Natl.Sci.Acad. 81 (2015) no.1, 152-157
DOI: 10.16943/ptinsa/2015/v81i1/48062
Conference: C14-01-15 Proceedings

G.4. **Study of fluctuations in excluded volume hadron resonance gas model**
Abhijit Bhattacharyya (Calcutta U.), Supriya Das, Sanjay K. Ghosh, Rajarshi Ray, Subhasis Samanta (Ctr. for Space Phys., Kolkata). 2015. 5 pp.
Published in Proc.Indian Natl.Sci.Acad. 81 (2015) no.1, 51-55
DOI: 10.16943/ptinsa/2015/v81i1/48050
Conference: C14-01-15 Proceedings

G.5. **Entropy scaling from chaotically produced particles in p-p collisions at LHC energies**
Supriya Das, Sanjay K. Ghosh, Sibaji Raha, Rajarshi Ray (Bose Institute). Apr 22, 2013. 4 pp.
Conference: C10-12-06.3 Proceedings
e-Print: arXiv:1304.5855 [hep-ph]

G.6. **Di-electron spectroscopy in CBM**
Tetyana Galatyuk (GSI) and Supriya Das (for the CBM collaboration)
Published in Indian J. of Physics **85** (1) (2011), 81 - 85
Conference : 20th. International Conference on Ultrarelativistic Nucleus-Nuclus Collisions, Quark Matter 2008, Jaipur, India

G.7. **Development of a RICH detector for electron identification in CBM**
C. Höhne, S. Das, M. Dürr, T. Galatyuk, P. Koczon, S. Lebedev, A. Maevskaya, G. Ososkov (for the CBM collaboration)
Published in Nucl. Inst. and Meth. **A** 595 (2008), 187
DOI : 10.1016/j.nima.2008.07.029
Conference : 6th. International Workshop on Ring Imaging Cherenkov Detectors (RICH 2007), Trieste, Italy

G.8. **Fluctuation studies in STAR**
Supriya Das (for the STAR collaboration)
Published in Proceedings of Science (CFRN 2006), 014
Conference : 2nd. Edition of the International workshop - Correlations and Fluctuations in Relativistic Nuclear Collisions, Florence, Italy

G.9. **Event-by-event fluctuation in K/π ratio at RHIC**
Supriya Das (for the STAR collaboration)

Published in Journal of Physics G : Nuclear and particle physics **32**, 12 (2006)
Conference : International Conference on Strangeness in Quark Matter (SQM 2006), LA, USA

G.10. **Event-by-event fluctuation in K/π ratio at RHIC**
Supriya Das (for the STAR collaboration)
Published in Journal of Physics Conference Series **50** (2005)
Conference : 5th. International Conference on Physics and Astrophysics of Quark-Gluon Plasma (ICPAQGP 2005), Kolkata, India

G.11. **Photon Multiplicity Detector for the ALICE experiment at CERN**
M. M. Aggarwal *et al.*
Published in Proceedings of the International Symposium on Nulcear Physics, Vol **43B** (2000), 498

G.12. **A new control unit for testing the Front End Electronics chips for the STAR and ALICE PMD**
R.N. Singaraju (VECC), Supriya Das, P.Bhaskar (VECC), M.S. Ganti (VECC), M.D. Trivedi (VECC) and Y.P. Viyogi (VECC)
Published in Proceedings of the International Symposium on Nulcear Physics, Vol **43B** (2000), 502

G.13. **A technique to measure the tension of short wires in gas detectors**
Supriya Das, R.N. Singaraju (VECC) and M.S. Ganti
Published in Proceedings of the International Symposium on Nulcear Physics, Vol **43B** (2000), 488

Contributions to annual DAE-BRNS Symposia on Nuclear Physics have not been listed.