Souvik Priyam Adhya

Curriculum Vitae

Present position

2024 **Marie Sklodowska Curie Actions ((P4F)) post doctoral fellow,**, *Institute of Physics of the Czech Academy of Sciences*, Prague, Czechia.

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Permanent address

P-50, *Mahatma Gandhi Road, Badamtala, Thakurpukur*, Kolkata 700063, West Bengal. India

Education

2011–2016 **Doctor of Philosophy**, *SAHA INSTITUTE OF NUCLEAR PHYSICS*, Kolkata.

2010–2011 **Post M.Sc.**, *SAHA INSTITUTE OF NUCLEAR PHYSICS*, Kolkata.
Coursework in Physics

2009 **Post M.Sc.**, *INDIAN INSTITUTE OF TECHNOLOGY*, Guwahati.
Coursework in Physics

2007–2009 **Masters of Science**, *UNIVERSITY OF CALCUTTA*, Kolkata.
Master in Physics

2004–2007 **Bachelor of Science**, *UNIVERSITY OF CALCUTTA*, Kolkata.
Honours in Physics

2004 **ISC**, *CISCE*, M. P. Birla F. H. S. School, Kolkata.

2002 **ICSE**, *CISCE*, M. P. Birla F. H. S. School, Kolkata.

Date of Birth

1985 27^{th} **November**.

Research Experience

2024 **Marie Sklodowska Curie Cofund (P4F) post doctoral fellow**, Institute of Physics of the Czech Academy of Sciences, Prague, Czechia.

2022 **Marie Sklodowska Curie Cofund (PASIFIC) post doctoral fellow**, Institute of Nuclear Physics, Polish Academy of Sciences (IFJ- PAN), Krakow, Poland.

2018-2021 **Post doctoral fellow**, Faculty of Physics & Mathematics, Charles University, Praha, Czech Republic, Europe.
Institute of Nuclear & Particle Physics.

September, 2018 **CERN-Theory division visitor**, CERN, Geneva, Switzerland.

2016-2018 **Research Associate**, Variable Energy Cyclotron Centre, Kolkata.
Experimental High Energy and Applications Group, ALICE- CERN.

June-August, 2017 **CERN-Theory division visitor**, CERN, Geneva, Switzerland.

2012-2015 **Senior Research Fellow**, Saha Institute of Nuclear Physics, Kolkata.
Thesis title : Collective phenomena and related properties of dense and hot relativistic plasmas.

June, 2015 **Guest visitor**, Institute of Theoretical Physics, TU, Wein, Austria.

2011–2012 **Junior Research Fellow**, Saha Institute of Nuclear Physics, Kolkata.

2010–2011 **Post-M. Sc.**, Saha Institute of Nuclear Physics, Kolkata.
Successfully completed the Post M. Sc. coursework

2009–2010 **Junior Research Fellow**, Indian Institute of Technology, Guwahati.
Successfully completed the coursework

Awards

2024 Marie Sklodowska Curie Cofund (P4F) post doctoral fellowship and grant (2 years), 2024

2021 Marie Sklodowska Curie Cofund (PASIFIC) post doctoral fellowship and grant (2 years), 2021

2021 Best poster presentation (theory), PANIC, 2021, Lisbon

2017 Future Circular Collider Diversity Award (travel support), 2017

2016 Best poster presentation, DAE-BRNS Symposium on Nuclear Physics, 2016, Kolkata

2016 Promotional talk for Young Scientist, DAE-HEP Symposium on High Energy Physics, 2016, New Delhi

2007 FAEA Scholarship- Foundation for Academic Excellence & Achievement, New Delhi

2009 CSIR-UGC NET for JRF and Lectureship, New Delhi

2009 GATE, New Delhi

HEP INSPIRE-HEP

http://inspirehep.net/author/profile/S.P.Adhya.1; *h-index:25*

Experimental collaboration

2016-2018 ALICE, CERN

On call detector expert for Photon Multiplicity Detector, ALICE.

List of research articles

2024 **arXiv:2409.06675 [hep-ph]**, *Souvik Priyam Adhya, Krzysztof Kutak, Wieslaw Placzek, Martin Rohrmoser and Konrad Tywoniuk*, Predictions for photon-jet correlations at forward rapidities in heavy-ion collisions.

2024 **arXiv:2409.04295 [hep-ph]**, *Souvik Priyam Adhya and Konrad Tywoniuk*, Sensitivity of jet quenching to the initial state in heavy-ion collisions.

2023 **Eur. Phys. J. C, 83 6 (2023) 512**, *Souvik Priyam Adhya, Krzysztof Kutak, Wieslaw Placzek, Martin Rohrmoser and Konrad Tywoniuk*, Transverse momentum broadening of medium-induced cascades in expanding media.

2023 **Eur. Phys. J. C 83 (2023) 4, 313**, *Sreemoyee Sarkar and Souvik Priyam Adhya*, Dynamically screened strongly quantized electron transport in binary neutron-star merger.

2022 **Eur. Phys. J. C 82, 20 (2022)**, *Souvik Priyam Adhya, Carlos A. Salgado, Martin Spousta and Konrad Tywoniuk*, Multi-partonic medium induced cascades in expanding media.

2022 **Acta Phys. Polonica Supp. 16 (2023) 1, 56**, *Souvik Priyam Adhya, Carlos A. Salgado, Martin Spousta and Konrad Tywoniuk*, Multipartonic cascades in expanding media.

2022 **Phys. Scr. 97 10, 104003**, *Sreemoyee Sarkar and Souvik Priyam Adhya*, Effect of dynamical screening on quantized longitudinal electrical conductivity in neutron star mergers.

2021 **arXiv:2108.11878**, *Sreemoyee Sarkar and Souvik Priyam Adhya*, Quantized electrical conductivity in binary neutron star mergers.

2020 **JHEP 07 (2020), 150**, *Souvik Priyam Adhya, Carlos A. Salgado, Martin Spousta and Konrad Tywoniuk*, Medium-induced cascade in expanding media.

2020 **Phys. Scr. 96 (2021) 014001**, *Souvik Priyam Adhya, Carlos A. Salgado, Martin Spousta and Konrad Tywoniuk*, Jet quenching in expanding medium.

2018 **Phys. Lett. B 784 (2018) 1-5** , *Maitreyee Mukherjee, Sumit Basu, Arghya Chatterjee, Sandeep Chatterjee, Souvik Priyam Adhya, Sanchari Thakur and Tapan K. Nayak*, Isothermal compressibility of hadronic matter formed in relativistic nuclear collisions.

2023 **Modern Phys. Lett. A 38 (2023) 2350035**, *S. P. Adhya, P. Bagchi, B. Chatterjee and N. Dutta.*, J/Psi dissociation in presence of magnetic field in heavy ion collisions.

2017 **Adv. High Energy Phys. 2017 (2017), 1273931**, *Souvik Priyam Adhya*, Astrophysical aspects of neutrino dynamics in ultra-degenerate quark gluon plasma.

2016 **Phys. Rev. D 93 (2016) no.7, 074033**, *S. P. Adhya, M. Mandal, S. Biswas and P. K. Roy.*, Pionic dispersion relations in presence of weak magnetic field.

2014 **arXiv:1408.6705**, *S. P. Adhya, M. Mandal, S. Sarkar, P. K. Roy and S. Chattopadhyay.*, Effect of thermalized charm on heavy quark energy loss.

2014 **J. Phys. G 41 (2014), 025201**, *S. P. Adhya, P. K. Roy & A. K. Dutt-Mazumder*, Modifications to the pulsar kick velocity due to magnetic interactions in dense plasma.

2012 **Phys. Rev. D 86 (2012), 034012**, *S. P. Adhya, P. K. Roy & A. K. Dutt-Mazumder*, Next to leading order non Fermi liquid corrections to the neutrino emissivity and cooling of the neutron star.

List of research articles in ALICE collaboration (co-author)

2020, Shreyasi Acharya et al., JHEP 02 (2020) 0417.
2020, Shreyasi Acharya et al., Phys.Rev.C 101 (2020) 4, 044907 .
2020, Shreyasi Acharya et al., JHEP 02 (2020) 0417.
2020, Shreyasi Acharya et al., Phys.Lett.B 802 (2020) 135227.
2019, Shreyasi Acharya et al., Phys.Rev.D 100 (2019) 9, 092004.
2019, Shreyasi Acharya et al., Phys.Lett.B 796 (2019) 204-219.
2019, Shreyasi Acharya et al., Phys.Lett.B 798 (2019) 134926.
2019, Shreyasi Acharya et al., Phys.Rev.C 100 (2019) 2, 024002.
2019, Shreyasi Acharya et al., JHEP 09 (2019), 108.
2019, Shreyasi Acharya et al., JHEP 03 (2019), 169.

List of Publications (in conference proceedings)

2021 **Springer Proc. Phys. 261 (2021), 555-561**, *P. Bagchi, N. Dutta, B. Chatterjee and Souvik Priyam Adhya*, Evolution of Quarkonia States in a Rapidly Varying Strong Magnetic Field .

2020 **PoS HardProbes2020 (2021), 129**, *Souvik Priyam Adhya, Carlos A. Salgado & Konrad Tywoniuk*, Jet quenching and scaling properties of medium-evolved gluon cascade in expanding media .

2018 **PoS HardProbes 2018 061 (2018)**, *Souvik Priyam Adhya, Carlos A. Salgado & Konrad Tywoniuk*, Dynamical quenching weights in an expanding medium .

2018 **Springer Proc. Phys. 203 (2018) 89-92** , *Souvik P. Adhya, M. Mandal, S. Biswas & P. K. Roy*, Pion Mass Modification in Presence of External Magnetic Field .

2017 **Proceedings of the DAE Symp. on Nucl. Phys. 62**, *Souvik P. Adhya, Carlos A. Salgado & Konrad Tywoniuk*, Medium-induced jet evolution for an expanding QGP .

2017 **Quark matter 2017**, *S. Basu, M. Mukherjee, S. Thakur, S. Chatterjee, S. P. Adhya and T. K. Nayak*, Pinning down the nature of QCD phase transition through the measurement of specific heat and isothermal compressibility.

2016 **Proceedings of the DAE Symp. on Nucl. Phys. 61**, *S. Thakur, K. Dutta, S. P. Adhya, T. K. Nayak & S. Basu*, Beam energy and centrality dependence of particle production in heavy ion collision at RHIC and LHC .

2016 **Proceedings of the DAE Symp. on Nucl. Phys. 61**, *S. P. Adhya, M. Mandal, S. Biswas & P. K. Roy*, Effect of weak magnetic field on pion mass in vacuum .
Poster Presentation

2016 **Proceedings of the DAE Symp. on Nucl. Phys. 61**, *S. K. Saha, S. Basu, S. P. Adhya, R. Biswas, S. Das, T. K. Nayak & S. K. Prasad*, Energy dependence of integrated suppression fraction in relativistic heavy-ion collisions .

2015 **PoS ICPAQGP2015 (2017) 070**, *S. P. Adhya, M. Mandal, S. Sarkar, P. K. Roy and S. Chattopadhyay.*, Energy loss of a heavy quark in a hot QCD plasma.

2015 **European Physical Journal Web of Conferences 95, 04001**, *S. P. Adhya & P. K. Roy.*

2014 **Proceedings of the INSA 81, pp. 288-295**, *S. P. Adhya & P. K. Roy.*

2013 **AIP Conference Proceedings 1524, pp. 263-266**, *S. P. Adhya, P. K. Roy & A. K. Dutt-Mazumder.*

2013 **Proceedings of the DAE Symp. on Nucl. Phys. 58**, *S. P. Adhya, P. K. Roy & A. K. Dutt-Mazumder*, Non-Fermi liquid correction to the kick velocity of pulsar .
Poster Presentation

2012 **Proceedings of the DAE Symp. on Nucl. Phys. 57**, *S. P. Adhya, P. K. Roy & A. K. Dutt-Mazumder*, Next to leading order calculation of neutrino emissivity from degenerate quark matter .
Poster Presentation

2011 **Proceedings of the DAE Symp. on Nucl. Phys. 56**, *S. P. Adhya, K. Pal & A. K. Dutt-Mazumder*, Next to leading order calculation of neutrino mean free path in degenerate quark matter .
Oral Presentation

Oral Presentation in Conferences/Workshops

2024 **Talk**, Exploring equilibration time of QGP through jet quenching, XXX Cracow Epiphany Conference 2024, Krakow, Poland.

2023 **Talk**, Transverse momentum broadening in expanding medium induced cascades, ATHIC 2023, Hiroshima, Japan.

2023 **Talk**, Exploring jet quenching through expanding medium induced cascades, ICPAQGP 2023, Puri, India.

2022 **Talk**, Exploring quenching features of multi-partonic cascades in expanding medium, ISMD 2022, Pitlochry, Scotland.

2022 **Talk**, Exploring jet quenching in expanding media, ICHEP 2022, Bologna, Italy.

2022 **Talk**, Jet quenching in expanding medium, ECT Trento Workshop 2022, Trento, Italy.

2022 **Talk**, Multipartonic cascades in expanding media, Quark Matter 2022, Krakow, Poland.

2021 **Poster and talk**, Multi-partonic medium induced cascades in expanding media, PANIC 2021, Lisbon, Portugal.

2021 **Talk**, Quenching features of quark and gluon initiated parton cascades in expanding media, International Conference on New Frontiers in Physics, Kolymbari, Greece.

2021 **Talk**, Quenching features of quark and gluon initiated parton cascades in expanding media, European Physical Society conference for high energy physics, Online.

2020 **Talk**, Universal features of the medium-induced gluon cascade and jet quenching in expanding media, ICHEP 2020, Prague, Czech Republic.

2020 **Talk**, Jet quenching and scaling properties of medium-evolved gluon cascade in expanding media, International Conference on Hard and Electromagnetic Probes of High-Energy Nuclear Collisions, Texas, USA.

2019 **Invited Talk**, Jet quenching in expanding medium, International Conference on New Frontiers in Physics, Kolymbari, Greece.

2018 **Talk**, Dynamical quenching weights in an expanding medium, International Conference on Hard and Electromagnetic Probes of High-Energy Nuclear Collisions, Aix-Les-Bains, Savoie, France.

2016 **Promotional Talk**, Pion mass modification in presence of magnetic field, DAE-BRNS Symp. on High Energy Phys., New Delhi.

2016 **Talk**, Weak magnetic field effect on pion dispersion relations, ATHIC 2016, New Delhi, India.

2015 **Talk**, Weak magnetic field effect on pion dispersion relations, CNT QGP Meet, VECC, Kolkata, India.

2015 **Invited Talk**, Collective phenomena and related properties of dense and hot relativistic plasmas, HIC for FAIR Nuclear Physics Colloquium, FrankFurt, Germany.

2015 **Talk**, Effect of thermalized charm on heavy quark energy loss, ICPAQGP, Kolkata.

2014 **Talk**, Role of magnetic interactions in dense plasma, International Conference on New Frontiers in Physics, Kolymbari, Greece.

2014 **Talk**, Modification to pulsar kicks, International Conference on Matter at Extreme Conditions- Then and Now, Bose Institute, Kolkata.

2012 **Talk**, Cooling of neutron stars, NUMEC, VECC, Kolkata.

2011 **Talk**, Non-Fermi liquid corrections to mean free path of neutrinos, DAE Symp. on Nucl. Phys., Vishakapatnam.

2009 **Talk**, Dynamical Friction, Bose Institute, Kolkata.

2009 **Talk**, Cosmic Rays & Radio Astronomy, St. Xavier's College, Kolkata.

2008 **Talk**, Uncertainty in Quantum Mechanics, Bose Institute, Kolkata.

Poster Presentation in Conferences/Workshops

2021 **Bullet talk**, Quenching features of quark and gluon initiated parton cascades in expanding media, Initial Stages 2021, Rehovot, Israel.

2019 **Poster**, Universal features of the medium-induced gluon cascade and jet quenching in expanding media, Quark Matter, 2019, Wuhan, China.

2017 **Poster**, Dispersion relations of charged and uncharged pions in presence of weak magnetic field, XQCD, 2017, Pisa, Italy.

2016 **Poster**, Effect of weak magnetic field on pion mass in vacuum, DAE Symp. on Nucl. Phys., Kolkata.

2012 **Poster**, Non-Fermi liquid phenomenon in neutron stars, ICRTNP, Solan.

2012 **Poster**, Non-Fermi liquid corrections to neutrino emissivity, DAE Symp. on Nucl. Phys., New Delhi.

Project supervision

2022 Project guide of Ariadna León (Universidad Autónoma de Madrid) and Nadzieja Śniegocka (St. Andrews University, Scotland) of IFJ-PAN International summer school on particle physics. Awarded 3rd position in best projects.

2022 Master project external examiner of St. Xaviers' College, Mumbai.

2016 Joint project guide of Arnab Pradhan of INSA Summer fellowship program with Prof. Tapan K. Nayak

Grants

2022 Marie Sklodowska Curie Cofund (PASIFIC) grant (Total budget: 2,50,000 EUR approx.)

Refereeing activities

2023 Particles (MDPI)

2023 Guest Editor of Special Issue "Exploring Quark Matter under Extreme Scenarios of Temperature and Density" in Universe [https://www.mdpi.com/journal/universe/special_issues/CTF1NO3618]

Computer skills

fortran, python, mathematica,C++(basic), Qiskit (basic), Quantum computation algorithms (learning)

Communication and organisational Skills

Workshop — Co-chair and organizer of Polish Particle and Nuclear Theory Summit, 22-24 November, 2023 [https://indico.ifj.edu.pl/e/krakowtheorysummit]

Conferences — Active role in organising conferences and meetings. Organiser of QCDcoll@IFJ monthly seminar series [https://sites.google.com/view/qcdcollifj/home]

Popular science — Youtube video "Glues of the Universe" for QGPAnatomy MSCA Pasific project (in English), S. P. Adhya (2024), Link: https://youtu.be/-z4LOlCIg04

Popular science — "Evolution of Man" (in Bengali), S. P. Adhya and M. Mandal, Science Congress (2012), Department of Science and Technology, West Bengal.

Representative roles — M. Sc. Class Representative, 2007-2009, St. Xavier's College, Kolkata

Representative roles	Joint Secretary, Research Fellow Association, 2011-2012, Saha Institute of Nuclear Physics, Kolkata
Bengali	Mothertongue
English	
Hindi	

Professors and collaborators acquainted with my research

Prof. Krzysztof Kutak, *Professor and Head, Instytut Fizyki Jadrowej Polskiej Akademii Nauk (IFJ-PAN)*, Address: ul. Radzikowskiego 152 31-342 Kraków Poland, Europe, Phone: (+48)126628312 email: krzysztof.kutak@ifj.edu.pl.

Prof. Konrad Tywoniuk, *Associate Professor, University of Bergen, Norway*, Address: 5007 Bergen, Norway, Phone: +4755583537 email: konrad.tywoniuk@uib.no.

Prof. Martin Spousta, *Associate Professor, Institute of Particle and Nuclear Physics, Faculty of Mathematics and Physics, Charles University*, Address: V Holesovickach 2, Praha 18000, Czech Republic, Europe, Phone: (+420) 604 155 614 email: martin.spousta@cern.ch.

Prof. Carlos A. Salgado, *Professor and Director, Departamento de F´ısica de Part´ıculas and IGFAE, Universidade de Santiago de Compostela*, Address: 15782 Santiago de Compostela, Spain, Phone: (+34) 881814088 email: carlos.salgado@cern.ch.

Prof. Tapan K. Nayak, *Former Deputy Spokesperson, ALICE, CERN, Switzerland*, Address: CERN CH 1211 Geneva 23 Switzerland, Phone: 0041 75 411 2171 email: tapan.nayak@cern.ch.