Prabir Kumar Haldar

Curriculum Vitae

Cooch Behar Panchanan Barma University
Department of Physics
Panchanan Nagar
Vivekananda Street
Cooch Behar, 736101, India
prabirkrhaldar@gmail.com
D.O.B.: 31/03/1973

Education

2003 **Ph.D (Physics)**, *Jadavpur University*, Jadavpur, Kolkata

1997 **M.Sc (Physics)**, *Jadavpur University*, Jadavpur, Kolkata
First Class

1995 **B.Sc (Physics)**, *Jadavpur University*, Jadavpur, Kolkata
First Class

Ph.D Thesis

Title **"Fluctuation in fragmentation and pionisation in ultra relativistic nuclear interactions"**

Supervisors Prof. Dipak Ghosh & Prof. Arghya Deb, Department of Physics, Jadavpur University.

Teaching Experience: 18 Years

Name Of The Institution	Position Held	Working Period
Cooch Behar Panchanan Barma University	Professor	01-02-2018 to till date
Dinhata College	Assistant Professor of Physics	02-03-2005 to 31-01-2018
Siliguri Institute of Technology	Lecturer of Physics	24-08-2004 to 01-03-2005

Awards

2009 Recipients of SERC FAST TRACK Scheme for Young Scientists from DST, Govt. of India.

2020 Recipient of **Shiksha Ratna** award given by Govt. of West Bengal.

Associate Members

2024 **ALICE-STAR India Collaboration**

2024 **Inter-University Centre for Astronomy and Astrophysics (IUCAA)**

Administrative Experience:

Positions Held	Period
Dean, Faculty of Post Graduate Studies in Science,Technology and Vocational Studies, Cooch Behar Panchanan Barma University (CBPBU)	From 14-06-2019 to 14-06-2022
Controller of Examinations (Offg.), Cooch Behar Panchanan Barma University	From 29-03-2018 to 28-09-2018 (Six Months)
Head ,Department of Physics, Cooch Behar Panchanan Barma University (CBPBU)	From 08-02-2022 to till date
Served as a Jt. Coordinator in the Dept. of Physics, CBPBU	Since Aug, 2015 to 31-10-2017
Head, Department of Physics, Dinhata College	From 01-09-2014 to 01-07-2017

Research

Specializations

High Energy Physics

Areas of Research Interest

• High-energy Heavy-ion Interactions, Studies on different global and local aspects of multi-particle production, Particle density fluctuation, Complex network analysis, Nuclear multifragmentation etc. by using various theoretical and statistical/analytical methods and Monte Carlo simulations. My research also finds common parameter values for various compact stars, yielding identical equations of state and central density. Starting from the core with a specific density, structural characteristics can be determined by halting when pressure hits zero. This approach differs from traditional TOV solving models. The mass-radius curve of compact stars is computed for various central density values under a given equation of state.

• Receiving techniques of Very Low Frequency (VLF, 3-30 kHz) radio waves, Space Weather/Solar activities, Atmospheric phenomena e.g. Tropical Cyclones, Lightning-thunderstorm, Earthquakes etc. and their impacts on Ionosphere. Observation of naturally generated Extremely Low Frequency (ELF, 1-300 Hz) and Ultra Low Frequncy (300-3000 Hz) radio signals.

Ph.D. Thesis Guidance

Awarded: 10

[1] Thesis Submitted to the University of North Bengal for Ph.D degree by **Mr. Sanjib Kumar Manna** on 2022 and recommended for Ph.D. degree. (Jointly supervised).

[2] Thesis Submitted to the Cooch Behar Panchanan Barma University for Ph.D degree by **Mr. Prosenjit Saha** on 2020 and recommended for Ph.D. degree.

[3] Thesis Submitted to the Cooch Behar Panchanan Barma University for Ph.D degree by **Mr. Bakul Das** on 2022 and recommended for Ph.D. degree.

[4] Thesis Submitted to the Cooch Behar Panchanan Barma University for Ph.D degree by **Mr. Abubakkar Siddik** on 2022 and recommended for Ph.D. degree.

[5] Thesis Submitted to the Cooch Behar Panchanan Barma University for Ph.D degree by **Ms. Nikita Ghosh** on 2023 and recommended for Ph.D. degree.

[6] Thesis Submitted to the Cooch Behar Panchanan Barma University for Ph.D degree by **Mr. Niharendu Barman** on 2023 and recommended for Ph.D. degree.

[7] Thesis Submitted to the Cooch Behar Panchanan Barma University for Ph.D degree by **Mr. Azharuddin Ahmed** on 2023 and recommended for Ph.D. degree.

[8] Thesis Submitted to the Cooch Behar Panchanan Barma University for Ph.D degree by **Ms. Nirpat Subba** on 2023 and recommended for Ph.D. degree.

[9] Thesis Submitted to the Cooch Behar Panchanan Barma University for Ph.D degree by **Mr. Asadullah Sk** on 2024 and recommended for Ph.D. degree.

[10] Thesis Submitted to the Cooch Behar Panchanan Barma University for Ph.D degree by **Ms. Kheyali Barman** on 2025 and recommended for Ph.D. degree.

Submitted: 01

[1] Thesis Submitted to the Cooch Behar Panchanan Barma University for Ph.D degree by **Ms. Shreya Bhattacharjee** (Ph.D. Reg. No.: CBPBU/115/Ph.D/016).

Registered: 06

[1] Mr. Subhadeep Paul (Ph.D. Reg. No.: CBPBU/115/Ph.D/021)
[2] Ms. Susmita Das (Registered)

[3] Ms. Taniya Kundu (Registered)
[4] Mr. Chayan Saha (Registered)
[5] Ms. Tumpa Biswas (Registered)
[6] Mr. Dibakar Dhar (Registered)
[7] Mr. Abhishek Paul (Coursework completed)
[8] Ms. Amrita Ghosh (Doing Coursework)

Sponsored Projects

2025–2028 **Application of Artificial intelligence in Relativistic Heavy-ion Collisions**, *Department of Science & Technology and Biotechnology (Government of West Bengal)*
- Sanction No: 1197(Sanc.)/STBT-11012(26)/4/2024-ST SEC Dt. 29.01.25
- Budget: Rs. 11,70,000/-
- Status: Started on 11.03.2025 (3 years)

2021–2024 **Study of lightning induced mesospheric phenomena and its association with severe weather using coordinated radio receivers and optical camera**, *Department of Science & Technology and Biotechnology (Government of West Bengal)*
- Sanction No: 917(Sanc.)/STBT-11012(20)/42/2019-ST SEC
- Budget: Rs. 3,80,000/-
- Status: Started on 05.03.2021 (3 years)

2009–2012 **Investigation of ring like (Super spiky) events in Ultra-relativistic Nuclear Interactions – evidence of QGP formation or Cerenkov Gluon Radiation**, *Department of Science and Technology (Fast Track Scheme For Young Scientists)*
- Sanction No: SR/FTP/PS-21/2008 Dated: 25/09/2008
- Budget: Rs. 14,69,200/- (Manpower: One JRF)
- Status: Completed (Started on 03.04.2009)

2007–2009 **Fluctuation Studies of Pionisation Process for ring like and Jet like events in Ultra-Relativistic Nuclear Interactions**, *University Grants Commission*
- Sanction No: PSW-139/06-07 (ERO) Dated: 19/02/2007
- Budget: Rs. 90,000/-
- Status: Completed

Research Publications:

, *International Journals*, 103

, *International conference papers*, 15

, *National conference papers*, 27

, *Regional/state level conference papers*, 02

, *Books with ISBN number*, 02

Google scholar, researchgate and ORCID ID link

Citation: 1070
h-index: 17
i10-index: 38
https://scholar.google.com/citations?user=9sdFHWgAAAAJ&hl=en

https://www.researchgate.net/profile/Prabir-Haldar

ORCIDID:0000-0002-2765-4544

Departmental Profile

https://cbpbu.ac.in/department-of-physics.php

Publication Details

International Journals:

Year : 2026

[1] A Study of Centrality-dependent Dynamical Fluctuations of Charged Particles ($\pi^{\pm}, K^{\pm}$) in Collisions at $\sqrt{s_{NN}}$= 5.02 TeV TeV Using the AMPT Model: An in-depth Analysis with Factorial Correlators – T Biswas, D Dhar, SK Manna, **P K Haldar, Brazilian Journal of Physics 56 (3), 134** (2026).

[2] Analytical model of low-mass strange stars using Durgapal IV space–time in (2+1) dimensions – M Murshid, D Dhar, T Kundu, **PK Haldar**, M Kalam, **Indian Journal of Physics 100 (2)**, 817-828 (2026).

[3] Net-charge fluctuations in p-Pb collisions at $\sqrt{s_{NN}}$= 5.02 TeV: insights from the AMPT model – S Paul, T Biswas, D Dhar, Z Ahammed, **PK Haldar, The European Physical Journal Plus 141 (1)**, 12 (2026).

[4] Statistical Variability Analysis of Resistive Switching in Lead-Free Double Perovskite Flexible Memristors – S Das, **PK Haldar**, PK Sarkar **Nanoscale 18**, 5873-5883 (2026).

Year : 2025

[5] Intermittency Analysis of Charged Particles ($\pi^{\pm}, K^{\pm}$) Generated in $\sqrt{s_{NN}}$ = 5.02, 8.16 TeV Collisions at LHC Energies Using AMPT ModelD Dhar, S Bhattacharjee, T Biswas, R Bhattacharyya, D Ghosh, **P K Haldar, Brazilian Journal of Physics 55 (6)**, 274 (2025).

[6] Erraticity analysis of multiparticle production in pp collisions at $\sqrt{s}$ = 2.76, 7 & 13 TeV – T Biswas, D Dhar, SK Manna, D Ghosh, **PK Haldar, The European Physical Journal Plus 140 (5)**, 392 (2025).

[7] Multifractality and correlations study in the framework of R/S analysis for ring-like and jet-like events at SPS energies – A Ahmed, N Subba, T Biswas, AA Alshehri, AN Tawfik, **PK Haldar, Canadian Journal of Physics 103 (6)**, 594-606 (2025).

[8] Dynamical fluctuations of pions in pp collisions at different LHC energies: an in-depth analysis with factorial correlator – T Biswas, A Ahmed, S Paul, D Dhar, SK Manna, M Kalam, D Ghosh, **P K Haldar, Indian Journal of Physics 99 (4)**, 1447-1461 (2025).

[9] Low-latitude sub-ionospheric VLF radio signal disturbances due to solar flares: Effects on the attenuation and phase velocities of the waveguide modes – K Barman, S Adhikary, B Das, S Pal, **PK Haldar, Journal of Atmospheric and Solar-Terrestrial Physics 268**, 106433 (2025).

[10] "Dynamical fluctuations of $\pi^{\pm}$, $K^{\pm}$ in pp, p-Pb and Pb-Pb collisions at $\sqrt{s_{NN}} = 2.76$ TeV using AMPT model" – T Biswas, D Dhar, SK Manna, **PK Haldar, International Journal of Modern Physics E 34 (10)**, 2550038 (2025).

Year : 2024

[11] Investigation of net-charge fluctuation for the particle yields in PbPb collisions at $\sqrt{s_{NN}}$= 5.5 TeV using AMPT model, S. Paul, T. Biswas, D. Dhar, Z. Ahammed, **P. K. Haldar**, **EPJP 139**, 1062 (2024).

[12] Bipolar-resistive switching characteristics in lead-free inorganic double-halide perovskite-based memory devices, S. Das, **P. K. Haldar**, P. K. Sarkar, **Bulletin of Materials Science 47(4)**, 225 (2024).

[13] Quantum geometric perspective on the origin of quantum-conditioned curvatures, A. N. Tawfik, A. Pasqua, M. Waqas, A. Alshehri, **P. K. Haldar**, **Classical and Quantum Gravity 41(19)**, 195018 (2024).

[14] The study of strongly intensive observables for $\pi^{\pm,0}$ in pp collisions at LHC energy in the framework of PYTHIA model, T. Biswas, D. Dhar, A. Ahmed, **P.K. Haldar**, A.N. Tawfik, **Acta Physica Polonica B 55,** 8-A3 (2024).

[15] Dynamical fluctuations of pions in pp collisions at different LHC energies: an in-depth analysis with factorial correlator, T. Biswas, A. Ahmed, S. Paul, D. Dhar, S. K. Manna, M. Kalam, D. Ghosh, **P. K. Haldar**, **Indian Journal of Physics** (2024).

[16] A comparative study of CuO nanoparticle and CuO/PVA-PVP nanocomposite on the basis of dye removal performance and antibacterial activity in wastewater treatment, N Ghosh, S Sen, G Biswas, LR Singh, D Chakdar, **P K Haldar**, **International Journal of Environmental Analytical Chemistry 104 (10)**, 2234-2254 (2024).

[17] Analytical model of low-mass strange stars using Tolman space–time in (2 + 1) dimensions, T. Kundu, M. Murshid, **P. K. Haldar**, M. Kalam, **Pramana Journal of Physics**, **98(2),** 75 (2024).

[18] A review on correlations among the multiplicities of charge particles at SPS, RHIC and LHC energies, S. Bhattacharjee, **P. K. Haldar**, **Modern Physics Letters A**, **39(13)**, 2430003 (2024).

[19] D-region ionospheric disturbances due to the December 2019 solar eclipse observed using multi-station VLF radio network, K. Barman, B. Das, S. Pal, **P. K. Haldar**, S. K. Midya, S. Pal, S. K. Mondal, **Advances in Space Research** (2024).

[20] An approach to complex network analysis on pp collisions at LHC energies, A. Ahmed, T. Biswas, N. Subba, S. Paul, A. N. Tawfik, M. Kalam, D. Ghosh, **P. K. Haldar**, **International Journal of Modern Physics E**, **33(6)**, 2450022 (2024).

[21] Resistive Switching Properties in Copper Oxide–Graphene Oxide Nanocomposite-Based Devices for Flexible Electronic Applications, N Ghosh, A Siddik, PK Sarkar, **P K Haldar Journal of Electronic Materials 53 (1)**, 432-440 (2024).

Year : 2023

[22] Wavelet transform-based multi-scale analysis of ring-like and jet-like events in relativistic heavy-ion collisions, **N. Subba, P.K. Haldar, The European Physical Journal Plus 138 (12)**, 1128, (2023).

[23] Study of forward–backward correlation and multiplicity fluctuations of pions produced in p–p collisions at recent LHC energies, S. Paul, S. Bhattacharjee, A. Ahmed, T. Biswas, M. Kalam, **P.K. Haldar**, **Journal of Physics G: Nuclear and Particle Physics 51 (1)**, 015002, (2023).

[24] Microlensing of halo objects in the exterior part of the Galaxy, T. R. Hossain, **P.K. Haldar**, M. Kalam, **arXiv preprint arXiv:2311.10184**, (2023). (Communicated)

[25] R/S analysis on multiparticle production process in nucleus–nucleus collisions at different SPS energies, N. Subba, A. Ahmed, A.N. Tawfik, **P.K. Haldar, Bulgarian Journal of Physics 50**, 398-411 (2023).

[26] A comprehensive review on poly (vinylidene fluoride) from a theoretical and multimodal applications perspective A. Sk, P. Adhikary, W. Rahman, **P. K. Haldar**, **Polymer Engineering** & **Science 63 (10)**, 3209-3222 (2024).

[27] Self-affine pionization in pp collisions at LHC energy, S. Bhattacharjee, S. Paul, A. Ahmed, A.N. Tawfik, **P.K. Haldar**, **International Journal of Modern Physics E 32 (5)**, 2350023 (2023).

[28] Energy dependence of the freeze-out parameters extracted from Au+ Au and Pb+ Pb collisions using THERMUS, M. Ghimiray, N. Subba, A. Ahmed, A.N. Tawfik, **P.K. Haldar, Indian Journal of Physics 97 (5)**, 1551-1564 (2023).

[29] Adsorption and Desorption Study of Reusable Magnetic Iron Oxide Nanoparticles Modified with Justicia adhatoda Leaf Extract for the Removal of Textile Dye and Antibiotic, N Ghosh, S Sen, G Biswas, A Saxena, **P. K. Haldar**, **Water, Air,** & **Soil Pollution, 234 (3)**, 202 (2023).

[30] Organic-inorganic FAPbBr3 perovskite based flexible optoelectronic memory device for light-induced multi level resistive switching application, A Siddik, **P K Haldar**, U Das, A Roy, PK Sarkar, **Materials Chemistry and Physics 297**, 127292 (2023).

Year : 2022

[31] A Brief Review of ELF/VLF Reception Techniques & Experiments, B. Das, **P.K. Haldar**, **Advances in Modern and Applied Sciences**, **146** (2022).

[32] Ionospheric Effects of Cyclonic Storms: A Brief Review, K. Barman, B. Das, S. Pal, **P.K. Haldar**, **Advances in Modern and Applied Sciences**, **164**, (2022).

[33] Nucleation of electro-active β and $\gamma-$ phases in P (V DF- HF P) for manufacturing energy harvesting device and self powered weight measuring device, A Sk, P Adhikary, **P K Haldar**, **Polymer Engineering & Science 62 (11)**, 3858-3867 (2022).

[34] Thermoelectric properties of Rashba compounds KSnX (X= Sb, Bi), N Barman, M Matin, A Barman, **PK Haldar**, **Journal of Applied Physics 132 (13)**, (2022).

[35] Search for fractality and phase transition in p–p collisions at LHC energy - S. Bhattacharjee, S. Paul, A. Ahmed, N. Subba, A. N. Tawfik, **P. K. Haldar**, **International Journal of Modern Physics E 31(8)** 2250079 (2022).

[36] Impact of Three Solar Eclipses of 2019–2020 on the D-Region Ionosphere Observed From a Subtropical Low-Latitude VLF Radio Station, B Das, K Barman, S Pal, **P K Haldar**, **Journal of Geophysical Research: Space Physics 127 (8)**, e2022JA030353 (2022).

[37] Review on some metal oxide nanoparticles as effective adsorbent in wastewater treatment, N Ghosh, S Das, G Biswas, **PK Haldar**, **Water Science and Technology 85 (12)**, 3370-3395 (2022).

[38] Recent Advances in Halide Perovskite-Based Nonvolatile Resistive Random-Access Memory - A. Siddik, P. K. Sarkar, **P. K. Haldar**, **Journal of Electronic Materials 51** 434–446 (2022)

Year : 2021

[39] Evidence of forward-backward correlation of pions in ultra-relativistic ring- and jet-like events in $^{16}O - Ag/Br$ interactions at E_{lab}=60 A GeV - A. Ahmed, N. Subba, S. Bhattacharjee, A. N. Tawfik, **P. K. Haldar**, **Eur. Phys. J. A 57** 332 (2021).

[40] Response of the Sub-Ionospheric VLF Signals to the Super Cyclonic Storm Amphan: First Observation from Indian Subcontinent, B Das, A Sen, S Pal, **PK Haldar**, **Journal of Atmospheric and Solar-Terrestrial Physics 220**, 105668 (2021).

[41] Degree of multifractality and correlations in framework of multi-dimensional complex network analysis for ^{16}O–Ag/Br interactions at 60 A GeV - N. Subba, A. Ahmed, S. Bhattacharjee, **P. K. Haldar**, A. N. Tawfik, **Eur. Phys. J. Plus 136** 813 (2021).

[42] First-principles study of anisotropic thermoelectric properties of hexagonal $KBaBi$- N. Barman, A. Barman, **P. K. Haldar**, **Journal of Solid State Chemistry 296** 121961 (2021).

[43] Pronounced fluctuations of pions in ring-like events in $^{16}O - Ag/Br$ interactions at 60 AGeV/c in the framework of complex network analysis- N. Subba, A. Ahmed, **P. K. Haldar**, A. N. Tawfik, **International Journal of Modern Physics E 30(01)** 2150002 (2021).

[44] Nonvolatile resistive switching and synaptic characteristics of lead-free all-inorganic perovskite-based flexible memristive devices for neuromorphic systems - Abubakkar Siddik, **Prabir Kumar Haldar**, Tufan Paul, Ujjal Das, Arabinda Barman, Asim Roy and Pranab Kumar Sarkar, **Nanoscale 13** 8864-8874 (2021).

[45] An approach to explore exotic hadronic states in $^{24}Mg - Ag/Br$ interactions at 4.5 A GeV/c in framework of complex network analysis,- A. Ahmed, N. Subba, **P. K. Haldar**, A. N. Tawfik, **Eur. Phys. J. Plus 136** 100 (2021).

[46] VLF radio signal anomaly associated with geomagnetic storm followed by an earthquake at a subtropical low latitude station in northeastern part of India- B. Das, A. Sen, **P. K. Haldar** and S. Pal, **Indian J Phys.** https://doi.org/10.1007/s12648-020-01966-2 (2021).

[47] D-region ionospheric disturbances associated with the Extremely Severe Cyclone Fani over North Indian Ocean as observed from two tropical VLF stations- B. Das, S. Sarkar, **P. K. Haldar** S. K. Midya, S. Pal, **Advances in Space Research 67** 75-86 (2021).

Year : 2020

[48] Enhancement of data storage capability in a bilayer oxide based memristor for wearable electronic applications, - A. Siddik, **P. K. Haldar**, P. Garu, S. Bhattacharjee, U. Das, A. Barman, A. Roy, P. K. Sarkar, **J. Phys. D: Appl. Phys. 53** 295103 (2020).

[49] Wavelet Analysis of Produced Pions in $^{24}Mg - Ag/Br$ Interactions at 4.5 A GeV/c, - P. Saha, N. Subba, A. Ahmed and **P. K. Haldar**, **Braz. J. Phys** $https://doi.org/10.1007/s13538 - 020 - 00736 - z$,(2020).

[50] Enhancement of luminescence behaviour of colloidal ZnO quantum dots coated with SiO2 irradiated by Ni^{+7} ion-D. Chakdar, A. Siddik, N. Ghosh, G. Gope, and **P. K. Haldar**,**Advanced Science, Engineering and Medicine 22**, 278-283,(2020).

Year : 2018

[51] Multifractal analysis of multiparticle emission data in the framework of visibility graph and sandbox algorithm, - P. Mali, S. K. Manna, **P. K. Haldar**, A. Mukhopadhyay and G. Singh, **Physica A 493**, 253-266, (2018).

[52] Wavelet analysis of particle density function in nucleus-nucleus interactions, -S. K. Manna, **P. K. Haldar**, P. Mali, A. Mukhopadhyay and G. Singh, **Int. J. Mod. Phys. E 27**, 1850009-1850025,

(2018).

Year : 2017

[53] Multifractal analysis of charged particle distributions using horizontal visibility graph and sand-box algorithm -P. Mali, S. K. Manna, **P. K. Haldar**, A. Mukhopadhyay and G. Singh, **Mod. Phys.Lett. A 32**, 1750024-1750033 (2017).

[54] Detrended analysis of shower track distribution in nucleus-nucleus interactions at CERN SPS energy Chaos -P. Mali, S. K. Manna, **P. K. Haldar**, A. Mukhopadhyay and G. Singh, **Chaos Soliton Fract 94**,86-94, (2017).

Year : 2013

[55] Ring and jet study on the azimuthal substructure of pions at CERN SPS energy-**P. K. Haldar**, S.K. Manna, P.Saha, D. Ghosh, **Pramana J. Phys 80(04)**, 631-642, (2013)

[56] Multidimensional Intermittency Study of Target Fragments at CERN SPS Energies - **P. K. Haldar**, S. K. Manna, P. Saha and D. Ghosh, **Astroparticle Physics 42**,76-85, (2013).

Year : 2012

[57] Dynamical fluctuations of pions for ring and jet-like events at SPS energy: an in-depth study with factorial correlator - P.K. Haldar, S.K. Manna, P.Saha, D. Ghosh, **Indian J Phys 86(12)**, 1155-1162, (2012).

[58] Pecularities in the Distribution of Produced Particles emission in ^{24}Mg-Ag/Br interactions at 4.5 A Gev - **P. K. Haldar**, S.K. Manna, P.Saha, D. Ghosh, **Indian Journal of Pure and Applied Physics Vol. 50**, 156-160, (2012).

Year : 2011

[59] Non-Statitical Fluctuations Of Pions For Ring- And Jet-Like Events At CERN SPS Energy - An In-Depth Analysis With Factoial Correlator - **P. K. Haldar**, S.K. Manna, P.Saha, D. Ghosh, **International Journal of Modern Physics E Vol. 20, No. 9**, 2027-2038, (2011).

[60] Factorial correlators and oscillatory multiplicity moments study of ring and jet-like events in $^{16}O - Ag/Br$ interactions at 60 A GeV, -**P. K. Haldar** and S. K. Manna, **Can. J. Phys. 89**,713-721, (2011).

[61] Ring and jet-like structure and two-dimensional intermittency in nucleus-nucleus collisions at 200A GeV/c, -M. K. Ghosh, **P. K. Haldar**, S. K. Manna, A. Mukhopadhyay and G. Singh, **Nucl.**

Phys. A 858,67-85, (2011).

[62] Fluctuation pattern of shower and compound multiplicity distributions in nucleus-nucleus interactions at a few GeV, -D. Ghosh, A. Deb, M.Lahiri, P.Mandal, S. Biswas, J. Ghosh, S. Bhattacharyya, **P. K. Haldar** and D. Maity, **Int. J. Mod. Phys. E 20**,1287-1306, (2011).

[63] Factorial correlators and oscillatory multiplicity moments at the CERN SPS energy for ring-like and jet-like events, -**P. K. Haldar** and S. K. Manna, **Chinese Phys. Lett. 28**,012502, (2011).

Year : 2010

[64] Levy index analysis for a multifractality and phase transition study of target fragments in ring-like and jet-like events, -D. Ghosh, A. Deb, A. Dhar(Mitra), R. Saha, D. Bhattacharya and **P. K. Haldar**, **Phys. Scr. 82**,045201-045209, (2010).

[65] Intermittency and related issues in $^{16}O - Ag/Br$ collision at 200A GeV/c, -M. K.Ghosh, **P. K. Haldar**, S. K. Manna, A. Mukhopadhyay and G. Singh, **Can. J. Phys 88**, 575-584 (2010).

[66] Void analysis of Target residues at SPS energies-. Sarkar, D. Ghosh, A. Deb, **P. K. Haldar** and R. Das, **Int. J. Mod. Phys. E 19**,407-417, (2010).

[67] Levy index and multifragmentations of targets at SPS energy-evidence of both monofractality and multifractality-D. Ghosh, A. Deb, **P. K. Haldar**, S. Guptaroy and A. Dhar(Mitra), **Fractals 18**,75-86, (2010).

Year : 2009

[68] Azimuthal correlation and fractal study of compound hadrons (pions and protons) at Dubna and SPS energies, -D. Ghosh, A. Deb, S. Ghosh, P. Mondal A. K. Mallik and **P. K. Haldar**, **Indian J. Phys. 83**,1463 - 1485, (2009).

[69] Ring type events and nuclear collision at SPS energies and nuclear refractive index-D. Ghosh, A. Deb, A. Dhar(Mitra) and **P. K. Haldar**, **Acta. Phys. Pol. B 40**,2355-2361, (2009).

Year : 2008

[70] Multifragmentations of targets at SPS energy-evidence of both monofractality and multifractality -D. Ghosh, A. Deb, S. Sarkar and **P. K. Haldar**, **Fractals 16**,1-6, (2008).

[71] Fluctuation and fractal characteristics of ring like and jet like events produced at SPS Energies-D. Ghosh, A. Deb, **P. K. Haldar** and S. Guptaroy, *Indian J. of Phys.* **82**,1339-1371. (2008).

Year : 2007

[72] Pronounced pionic self-similarity in ring-like events in $^{16}O - Ag/Br$ interactions-D. Ghosh, A. Deb, **P. K. Haldar** and A. Dhar, **EPL 80**,22003, (2007).

[73] Self-affine scaling and non-thermal phase transition in target fragments of muon-nucleus interactions at high energy -D. Ghosh, A. Deb, **P. K. Haldar**, S.I. Ahmed and P. Ghosh, **Mod. Phys. Let. A 22**,1759-1768, (2007).

[74] Fractality of emission of compound multiplicity in $^{12}C - Ag/Br$ interactions at 4.5 A GeV -, D. Ghosh, A. Deb, S. Ghosh, P. Mondal and **P. K. Haldar**, **Can. J. Phys. 85**,385-392, (2007).

[75] Signature of void probability scaling in jet like events $^{16}O - Ag/Br$ interactions at 60 GeV/n-D. Ghosh, A. Deb, **P. K. Haldar** and S. Guptaroy, **Astropart. Phys. 27**,127-133, (2007).

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