

Personal Profile

* **Name (in full):** DR. SUJAY KUMAR NAYEK

* **Present Position:**

Assistant Professor (Stage II)
 Department of Mathematics,
 Netaji Nagar Day College
 170/436 N. S. C. Bose Road, Regent Estate
 Kolkata-700092, India

Date of Joining: 21st March, 2017

* **Sex:** Male

* **Caste:** General

* **Marital Status:** Married

* **Nationality:** Indian

* **E-mail:** sujay_nayek@yahoo.com; sujaynayek33@gmail.com

* **Homepage:** https://nndc.ac.in/dept_details.php?q=Math

Academic Profile

• Ph.D. (in Mathematics), 2015

Thesis title: Dynamics of positron scattering from hydrogen atom with screened Coulomb interactions.

Broad Topic of research: Atomic and Molecular Physics

Supervisor: Prof. Arijit Ghoshal

Department of Mathematics, The University of Burdwan, West Bengal, India

• M.Sc. in Mathematics (Second Position), 2008

Specialization: Quantum Mechanics

The University of Burdwan, West Bengal, India

• B.Sc. in Mathematics Hons.(Third Position), 2006

Katwa College, The University of Burdwan, West Bengal, India

• Higher Secondary (Class XII), First division, 2003

Katwa Kashiram Das Institution, West Bengal Council for Higher Secondary Education (W.B.C.H.S.E)

Subject: Bengali, English, Mathematics, Physics, Biology, Chemistry

• Secondary Education (Madhyamik Pariksha), First division, 2001

Katwa Kashiram Das Institution, West Bengal Board for Secondary Education (W.B.B.S.E)

Subject: Bengali, English, Mathematics, Physical Science, Life Science, Geography, History

Achievements

• National Board for Higher Mathematics (NBHM) Post Doctoral Fellowship, Funded by Department of Atomic Energy, India, 2014

• Qualified the eligibility test for **UGC -NET** Exam. conducted by C.S.I.R, Human Research Development Group held on 20.12.2009 and secured JRF 138/226 rank in the subject Mathematical Sciences.

• Qualified **GATE 2010**, Organized by IIT Guwahati on behalf of National Coordination Board, Department of Higher Education, MHRD, India; All India Rank 209/2934, Dated: 15th March, 2010.

• **Certificate of Merit:** for ranking second (2nd) in order of merit in M. Sc. (Mathematics) (Part-I+Part-II) Examination (2008).

• **Certificate of Merit:** for ranking third (3rd) in order of merit in B. Sc. (Mathematics Hons.) (Part-I+Part-II) Examination (2006).

Computer Knowledge/Computational Skill

- **Operating Systems:** Linux, Windows and DOS environments
- **Mathematical Softwares:** Wolfram Mathematica and Maple
- **Plotting Softwares:** Origin
- **Programming Language:** FORTRAN 77
- **Text formatting:** LATEX, Microsoft Office and Libre Office

Teaching Experience

- Under Graduate Level: Assistant Professor at Netaji Nagar Day College, 170/436 N. S. C. Bose Road, Regent Estate, Kolkata 700092, West Bengal, India from 21. 03. 2017 to till date.
Topic: Dynamics of Particle, Limit, Continuity and Differentiation of a single variable function, Classical Mechanics, Differential Equations, Fourier Transforms, Laplace Transforms, Vector Analysis, C Programming.
- Post Graduate Level: Netaji Subhas Open University, Kolkata, took approx 72 classes (one hour each class) as a Counsellor, in the academic sessions 2021-2022, 2022-2023 and 2023-2024. **Topic:** Classical Mechanics and Fourier Transforms, Laplace Transforms.
- Post Graduate Level: Directorate of Distance Education, The University of Burdwan, W.B., 2020; **Topic:** Classical Mechanics.
- Under Graduate Level: Part-time Lecturer, Department of Mathematics, Katwa College (under The University of Burdwan) from 10.01.2009 to 30.9.2010, total 1 year 8 months and 20 days.
Topic: Vector Analysis, Dynamics of Particle, Fourier Transforms, Laplace Transforms.

Research Experiences

- Research experiences in the group of Dr. Jayanta Saha, Department of Physics, Aliah University, Newtown, Kolkata-700160, India from January, 2019 to January, 2022.
- From 1st December, 2014 to 20th March, 2017: NBHM Post Doctoral Fellow at the Department of Mathematics, The University of Burdwan, West Bengal, India in the group of Prof. Arijit Ghoshal.
Research Area: **Atomic Collision Phenomena Under Plasma Environment.**
- From 8th October, 2010 to 7th October, 2012 as Junior Research Fellow (UGC); From 8th October, 2012 to 7th April, 2014: Senior Research Fellow (UGC), Supervisor: Prof. Arijit Ghoshal.
Title of the Thesis: **Dynamics Of Positron Scattering From Hydrogen Atom With Screened Coulomb Interactions.**

Research Interests

- Studies of bound state energy eigenvalues and other properties of diatomic molecules under external fields.
- Development of theoretical models for structure calculations of atoms under various types of confinements (Weakly, Strongly, Quantum and Complex dusty plasma confinements).
- Atomic collision phenomena under plasma environments (Weakly Coupled Plasma, Dense Quantum Plasma, Non-ideal Classical Plasma).

Scientific Collaborations

- Dr. Jayanta Kumar Saha, Department of Physics, Aliah University, Newtown, Kolkata-700160, India
- Dr. Faizuddin Ahmed, Department of Physics, University of Science & Technology Meghalaya, Ri-Bhoi, Meghalaya-793101, India

Research Websites

1. **Google Scholar:** <https://scholar.google.co.in/citations?user=N8KsD5wAAAAJ&hl=en>
2. **Research Gate:** https://www.researchgate.net/profile/Sujay_Nayek
3. **ORCID ID:** <https://orcid.org/0000-0002-7733-0775>

Organizational activities, Member of Committees

- Member of Internal Quality Assurance Cell (IQAC), Netaji Nagar Day College (NNDC) from 9th Feb, 2021 to present.
- Presently members of different Sub-Committees like Publication and Magazine Sub-committee (Joint Convenor), Seminar, Picnic & Tour, Science & Nature Club).
- Teachers' Council Secretary of NNDC from 21st Dec, 2019 to 15th Jan, 2024.
- Joint Co-ordinator of NAAC steering committee, approved by the Governing Body of NNDC, in NAAC Steering Committee Meeting, GB Resolution Number 4, Dated 20.10.2020 to 24.6.2023.
- Convener of the Leave and Establishment Sub-Committee approved by Governing Body meeting, NNDC, Dated 06.05.2019.
- Member of Library Sub-Committee approved by Governing Body of NNDC, Reolution Number T5, meeting held on 05th Oct, 2018 to June, 2022.
- Member of the committees like Anti-Ragging Committee (2022, 2023, 2024, 2025), Grievance Redressal Committee (2022, 2023, 2024, 2025).
- Nodal officer of NNDC for BANGLAR UCHCHASHIKSHA, Department of Higher Education, Govt. Of West Bengal from 29th Dec, 2020 to 2023.
- Course Coordinator, Teachers' Exchange Prgramme with NNDC and Bankura Zilla Saradamani Mahila Mahavidyapith, Bankura, 03/05/2021 to 02/05/2024.
- Convener of International Webinar on Mathematical Theory of Atoms and Molecules (IWMTAM 2020) organized by the Department of Mathematics, Netaji Nagar Day College, Kolkata, held on 19th and 20th October 2020.
- Convener of National Level Webinar on Few Misconceptions in Numerical Analysis and Numerical Treatment to PDEs, Organized by Department of Mathematics, Netaji Nagar Day College, held on 29th June 2020.
- Convener of One Day Seminar on Island Ecology & Environmental Management: Sundarban Chapter, Organized by Department of Geography, Zoology, Botany and Mathematics, held on 31st Jan, 2019.
- Joint Convener of Annual Exhibition-2019 on Sports and Education: An Interdisciplinary Approach, organized by Netaji Nagar Day College, held on 29th & 30th Jan, 2019.
- Programme Co-ordinator of the State Level Webinar on Energy and Sustainability, organized by the Department of Chemistry under aegis of IQAC, NNDC held on 19th September, 2020.
- Programme Co-ordinator of the National Level Webinar on Aspects of Biodiversity and Climate Change Issue in the Present Scenario, organized by the Depts. of Zoology, Mathematics & Environmental Studies Unit under the aegis of IQAC, Netaji Nagar Day College Kolkata in collaboration with Hariharpur Friends of Environment Society, held on 3rd Sept, 2020.

Delivered Lectures as a Resource Person

1. **Title of the Lecture:** "Schrodinger's Wave Equation and Its Applications in Quantum Physics".
Organized by Department of Mathematics under the DBT STAR COLLEGE SCHEME of Durgapur Government College, West Bengal.
Date: 30th August, 2025.
2. **Title of the Lecture:** "Impact of Indian Knowledge System on Mathematics Education"
Organized by Department of Mathematics under the DBT STAR COLLEGE SCHEME of Durgapur Government College, West Bengal.
Date: 20th March, 2025.
3. **Title of the Lecture:** "Role of Indian Knowledge System in the Field of Science, Especially in Mathematics Education"
National Workshop on Implementation of New Education Policy 2020- "Embedding Indian Knowledge System (IKS) in Curriculum"; organized by IAQC & Department of Botany ADTs Shardabai Pawar Mahila Arts, Commerce and Science College, Sharanagar, Tal- Baramati, Dist. -Pune, Maharashtra 413115, India.
Date: 28th Feb, 2023.

Participated and Paper Presented in International Conferences/Webinars

1. **Oral presentation** on “**Combined Effect of Topological Defect Parameter and Aharonov-Bohm Flux Field on H_2 , HCl , CO and LiH under Morse potential**” in the International Conference on “Mathematical Methods and Numerical Computation for Nonlinear Dynamics in Biological and Physical Sciences”, organized by the Department of Mathematics, Mahadevananda Mahavidyalaya in collaboration with University of Strathclyde, University of Rajshahi, Seth Anandram Jaipuria College & Adamas University, from May 5th to 7th, 2025.
2. **Oral presentation** on “**Bound state energy and structural properties of hydrogen atom under non-ideal classical plasma environment**” in the International Conference on Foundations For Contemporary Mathematical Research, Organized by Department of Mathematics, Manipur University, Canchipur, Imphal, India, November 8-10, 2021.
3. **Poster presentation** on “**Bound and resonance states of H^- , Ps^- and Mu^- under weakly coupled plasma environment**” in the International Conference on Atomic, Molecular, Optical & Nano Physics with Applications (CAMNP 2019), Organized by Department of Applied Physics, Delhi Technological University, New Delhi, India, December 18-20, 2019.
4. **Oral presentation** on “**Dynamics of $p+H(1s) \rightarrow H(nlm)+p$ with exponential cosine screened Coulomb potential**” in the “International Conference On Mathematics and its Applications” Organized by Department Of Mathematics, The University Of Burdwan, February 15-17, 2018.
5. **Oral presentation** on “**Scattering of electron from hydrogen atom: asymptotic cross section and scaling law**” in the “International Conference on Applications of Mathematics in Topological Dynamics, Physical, Biological and Chemical Systems (ICAMTPBCS-2016)” Organized by Calcutta Mathematical Society, Kolkata, December 09-11, 2016.
6. **Oral presentation** on “**Elastic $e^+ \rightarrow H$ collisions with screened Coulomb potentials**” in the “International Conference on Emerging Trends in Applied Mathematics: Dedicated to the Memory of Sir Asutosh Mookerjee and Contributions of S.N. Bose, M.N. Saha and N.R. Sen.” Organized by Department Of Applied Mathematics, University Of Calcutta, Kolkata, In collaboration with Saha Institute of Nuclear Physics, Kolkata & Indian Association for the Cultivation of Science, Kolkata February 12-14, 2014.
7. **Oral presentation** on “**Effects of screening of dense quantum plasmas on positronium formation in positron-hydrogen collisions**” in the “3rd International Conference On Frontiers Of Mathematics and Applications-2014 (ICFMA-2014)” Organized by Department Of Mathematics, The University Of Burdwan, West Bengal, Kolkata, January 29-31, 2014.

Participated and Paper Presented in National Seminars/Conferences/Webinars

1. **Oral presentation** on “**Hydrogen Atom Embedded in Non-ideal Classical Plasmas**” at the National Webinar on Recent Advances in Mathematical Sciences (NWRAMS 2021) Organized by the Department of Mathematics, Maharaja Bir Bikram University, Agartala, Tripura, PIN 799004, September 29-30, 2021.
2. **Poster presentation** on “**Dynamics of $p+H(1s) \rightarrow H(nlm)+p$ with Lorentzian Astrophysical Plasmas**” at the “National Conference On Atomic, Molecular and Nano Sciences (NCAMNS-2019)” Organized by the Department of Physics, Aliah University, Newtown, Kolkata-700160, April 03-04, 2019.
3. **Oral presentation** on “**Charge transfer in proton-hydrogen collisions under dense quantum plasma**” at the “One day Seminar on Recent Trends in Atomic Molecular and Material Science (RTAMMS'17)” Organized by Adamas University, Adamas Knowledge City Campus, Barasat, September 16, 2017.
4. **Oral presentation** on “**Charge transfer in proton-hydrogen collisions under dense quantum plasma**” at the “National Seminar On Recent Advances in Computational Mathematics (RACM-2016)” Organized by Department Of Applied Mathematics, University Of Calcutta, December 27-29, 2016.
5. **Oral presentation** on “**Positronium formation in positron-hydrogen collisions embedded in dense quantum plasma**” at the “National Seminar On Advances in Mathematics & Applications (AMA-2013)” Organized by Department Of Mathematics, The University Of Burdwan, West Bengal, March 6-7, 2013.
6. **Oral presentation** on “ **$e^+ + H(ns) \rightarrow e^+ + H(n's)$ embedded in weakly coupled plasmas**” at the “National Seminar On Analysis Of Nonlinear Systems (ANS-2011)” Organized by Department Of Mathematics, Siksha Bhavana, Visva-Bharati, Santiniketan, March 26-27, 2011.

7. **Oral presentation** on “**Effects of screening on the differential cross section for $e^+ + H(ns) \rightarrow e^+ + H(n's)$ with screened Coulomb potentials**” at the “National Seminar On Mathematics & Applications (NSMA-2011)” Organized by Department Of Mathematics, The University Of Burdwan, West Bengal, February 24-25, 2011.

Participation in Faculty Development Programmes, RC, OP, Workshops, Schools, Short Term Courses

1. 1st Faculty Development Program (FDP) on “Density Functional Theory Computations of Advanced Materials (DFT-Advanced)”; organized by the Centre for Advanced Computational Research, Delhi from 8th November-17th November 2025 via Online Mode.
2. One Day Workshop of Implementation of NEP-2020 in UG Mathematics at NSOU; Organized by the Department of Mathematics, School of Sciences, Kolkata on 22nd August, 2024.
3. Refresher Course (RC) on Research Methodology (ID) under Malaviya Mission Teacher Training Programme (MM-TTP) of University Grant Commission (UGC); Organized by UGC-MMTTC, Guru Ghasidas Vishwavidyalaya (A Central University), Bilaspur (CG) from 05-08-2024 to 19-08-2024.
4. Online Workshop on “Recent Development of Mathematical Sciences on Biological and Dynamical Systems with Fuzzy and Fractional Environments”; Organized by the Department of Mathematics, Mahadevananda Mahavidyalaya, from 19th Jun 2024 to 29th Jun 2024.
5. “NEP 2020 Orientation & Sensitization Programme-3 under Malaviya Mission Teacher Training Programme (MM-TTP) of University Grants Commission (UGC)”; Organized by The University of Burdwan from 17th May 2024 to 28th May 2024.
6. Two Day National Level Workshop Cum Seminar on “Indian Knowledge System: Relevance and Application”; Organized by IQAC, Bankim Sardar College, Naba Ballygunge Mahavidyalaya, Debra Thana Sahid Kshudiram Smriti Mahavidyalaya (Autonomous), Partially Sponsored by, Indian Council of Social Science Research-Eastern Regional Centre, Corporate Partner: Bengal Business Council.
Date: November 29-30, 2024.
7. Short Term Course on “Open Distance Learning, MOOCs and E-Content Development” (Online Mode); Organized by UGC-HRDC North Bengal University, W.B.; August 24-30, 2022.
8. Two day online National Level workshop on “Transformation through NAAC ACCREDITATION PROCESS for Higher Educational Institutions & Health Science Institutions”, held on 20th & 21st June 2022 conducted by “Institute for Academic Excellence, Hyderabad” in collaboration with “Collegiate Education & Technical Education Department, Telangana State”.
9. Faculty Development Programme on "Scientific Computing Using SAGEMATH and R" Organized by the Department of Mathematics, Bethune College, Kolkata under the DBT Star College Scheme, held on 31st March, 2022.
10. Short Term Course on “Nature and Society of Indian Himalayan Region” (Online Mode) Organized by UGC-HRDC North Bengal University, W.B.; 23-29 November, 2021.
11. Five Days Faculty Development Programme on "Mathematical Biology and Biostatistics" (Online Mode) organized by Amity Institute of Applied Science, Amity University, Kolkata, West Bengal, India; 26-30 July, 2021.
12. Workshop on “Emerging Areas in Mathematics (WEAM-2021)” (Online Mode) organized by Calcutta Mathematical Society, Kolkata - 700064, West Bengal, India; 10-17 July, 2021.
13. Two day online workshop on “Transformation Through NAAC Accreditation Process, A National Level Workshop for Higher Educational Institutions” conducted by Institute for Academic Excellence, Hyderabad in collaboration with Collegiate Education & Technical Education Department, Telangana State; held on 21st and 22nd June 2021.
14. Refresher Course in Applied Mathematics and Statistics (Online Mode) organized by UGC-HRDC, Devi Ahilya Vishwavidyalaya, Indore from 25.11.2020 to 08.12.2020.
15. Summer School On Mathematics (Online Mode), Jointly organized by Kalna College and The Indian Mathematics Consortium (TIMC), Duration: 12th June,2020 - 12th July, 2020 (Excluded Sunday, 4 hours per day).

16. 106th Orientation Programme (Science, Engineering & Technology) organized by HRDC, Goa University, Goa during 18.02.2020 to 16.03.2020.
17. Teachers' Enrichment Workshop in Mathematics for College and University Teachers, at Asutosh Bhavan, CMS Building, AE374, Salt Lake (Sector-I), Kolkata64 in collaboration with the (India) Mathematics Consortium (TMC), Pune and Department of Mathematics, Raigung University,W.B, Organized by Calcutta Mathematical Society during 15.06.2017 to 29.06.2017.

Participated (only) in State, National & International Level Seminars/Conferences/Webinars

1. Participated in the International Conference on "Recent Advances and Applications in Pure and Applied Mathematics-2025" (1CRAALAM-2025), in offline /online mode, held at Khalksani Mahavidyalaya, Chandannagar, Hooghly, West Bengal, India in Collaboration with Calcutta Mathematical Society (CMS) Auring 25-26 April, 2025.
2. Participated in the Two-day National Conference on "Recent Trends in Mathematics and its Applications" (RTMA-2025) organized by the Department of Mathematics, in collaboration with IQAC, Bidhan Chandra College, Asansol-713304, West Bengal, India, on April 4-5, 2025.
3. Participated in the National Lavel Research Methodology Seminar on "Appication of AI Tools in Academic Research"; Organized by Research and Guidance Cell, Vijaygarh Jyotish Ray College, Kolkata, in collaboration with Netaji Nagar Day College, Kolkata on 6h January, 2025 from 2.00 PM to 4.00 PM at Rabindra Sabhagriha, Vijaygarh Jyotish Ray College.
4. Participated in the National Seminar on "Recent Trends in Atomic Collision Physics"; Organized by Department of Physics, Ramakrishna Mission Residential College(Autonomous), Narendrapur, during 20th to 21st December, 2024.
5. Participated in the one day conference on "Frontiers in Modern Astronomy, Astrophysics, and Space Science", organized as a part of Silver Jubilee Closing Ceremony of Indian Centre for Space Physics (ICSP), held at JNC Auditorium, ICSP, Kolkata, on 7th December, 2024.
6. Participated in the One Day Administrative Training Programme on "Implementaion of UG Admission Regulations Under Curriculum & Credit Framework in Terms of NEP 2020", Organized by IQAC, Vijaygarh Jyotish Ray College, Kolkata 700032, held on 27.06.2023.
7. Participated in the "International Webinar on Recent Trends of Mathematical Science (IWRTMS 2022)", Organized by Calcutta Mathematical Society during 25-26 February, 2022.
8. Participated in the "One Day Seminar on NAAC, HE and NEP 2020:Current Perspectives", Organized by IQAC, Vijaygarh Jyotish Ray College, Kolkata 700032, on 6th May, 2022.
9. Participated in the "One Day Seminar on the Frontiers of Light-Matter Interactions", Organized by the Department of Physics, Aliah University, Newtown, Kolkata-700160, on 14th January, 2019.
10. Participated in the "International Conference on Recent Trends in Mathematical Sciences and Applications (ICRTMSA-2016)", Organized by the Department of Mathematics, The University Of Burdwan on 9th February, 2016.
11. Participated in the "One Day Seminar Colloquium on the Lives and Works of Sir Asutosh Mookerjee and Acharya Brajendra Nath Seal: A Retrospective Endeavour", Organized by the Department of Mathematics, The University Of Burdwan on 26th March, 2014.
12. Participated in the "10th Micro Seminar on Nonlinear Phenomena", Organized by the Department of Mathematics, The University Of Burdwan on July 27, 2012.
13. Participated in the "National Seminar on Mathematics & Applications (NSMA-2012)", Organized by the Department of Mathematics, The University Of Burdwan during March 28-29, 2012.
14. International Webinar on "**Recent Trends of Mathematical Science (IWRTMS 2022)**" Organised by Calcutta Mathematical Society, Kolkata during 25-26 February, 2022, Duration: **8 hours**.
15. One Day National Webinar on "**Crossing Number of Graphs**" Organised by Durgapur Govt. College, Durgapur, W.B.; held on 28th October, 2021, Duration: **2 hours**.

16. One Day State Level Webinar on “**A Brief Survey on selected topics on Real Analysis and Geometry**”, Organised by Department of Mathematics, in collaboration with IQAC Fakir Chand College, Diamond Harbour, South 24 Pgs, W.B.,India; held on 08/07/2021 from 3:00 P.M to 5:30 P.M, Duration: **2.30 hours**.
17. National Level Webinar on “**Aspect of Biodiversity and Climate Change Issues in Present Scenario**”, Organized by Department of Zoology, Mathematics and Environment Studies, Netaji Nagar Day College, Kolkata 92, W.B.; Duration: **2.30 hours**.
18. A Two day International Webinar on “**Algebra, Analysis & Topology**”, Organized by the Department of Mathematics, Bankura University, West Bengal, Dated: 13th-14th August, 2020; Duration: **Six hours**.
19. Webinar on “**Algebraic structures in the crossroads of Mathematics**”, Organized by the Department of Mathematics, Ramakrishna Mission Residential College (Autonomous), Narendrapur, Kolkata -103, Dated: 28.07.2020; Duration: **Two hours**.
20. One Day International Webinar on “**Mathematics as a Weapon to Tackle Real Life Problems**”, Organized by the Department of Mathematics, Krishnagar Government College, Krishnagar, Nadia, West Bengal, Dated:27.07.2020; Duration: **Two hours**.
21. Webinar on “**Srinivasa Ramanujan : The Man and The Mathematician, who claimed $1+2+3+\dots = -\frac{1}{12}$** ”, Organized by the Department of Mathematics, Ramakrishna Mission Residential College (Autonomous), Narendrapur, Kolkata -103, Dated: 20.07.2020; Duration: **Two hours**.
22. International Webinar on “**Ramification of some precautions for controlling disease under the global sustainable supply chain management**”, Jointly organized by the Department of Mathematics and the IQAC, Narasinha Dutt College, Dated: 03.07.2020; Duration: **One hour**.
23. National Webinar on “**The Role of Mathematical Modeling in COVID 19 Pandemic Response: Main Challenges**”, Department of Mathematics in collaboration with IQAC, Vijaygarh Jyotish Ray College, Kolkata, Dated: 22.06.2020; Duration: **Two hours**.
24. Webinar on “**Can there be a theory to play a game?**”, Organized by IQAC, Lakhimpur Girls' College in association with Gonit Sora, Dated:12.06.2020; Duration: **Two hours**.
25. One Day National Webinar on “**Mathematical Model on COVID 19**”, Organized by the Department of Mathematics, Achhruram Memorial College Jhalda, Purulia, W.B.-723202, Dated: 09.06.2020; Duration: **Two hours**.
26. One Day National Webinar on “**Classical Geometries and Linear Algebra**”, Organized by the Department of Mathematics in association with IQAC, Bangabasi Evening College, Dated: 08.06.2020; Duration: **Two hours**.

Contributed as an Author or Editor in Books / Monographs / Book Chapter(s)

1. Title of the e-Book Chapter: “**Applications of Python in Eigenvalue Problems**” Author: Sujay Kumar Nayek, Chapter 29, Page 301, Proceedings of the Two-Day National Conference on Recent Trends in Mathematics & Its Applications; ISBN: 978-93-5879-746-6, ISBN-10: 93-5879-746-0, DIP: 18.10.9358797460; DOI: 10.25215/9358797460; Editon: August, 2025.
2. Title of the e-Book Chapter: “**Geometrical and Kinematical Properties of Hydrogen Atom in Plasma Medium**”, Author: Sujay Kumar Nayek, Book Title: *A Closer Look at the Hydrogen Atom*, Editor: Prof. Amlan Kusum Roy, IISER Kolkata, Publisher (International): Nova Science Publishers, Inc. Publication Date: October 15, 2024, DOI: <https://doi.org/10.52305/HDVE7184>
3. Title of the e-Book Chapter: “**Stark Effect on the Ground State of Hydrogen Atom with Screened Coulomb Potential**”, Author: Sujay Kumar Nayek, Book Title: *A Closer Look at the Hydrogen Atom*, Editor: Prof. Amlan Kusum Roy, IISER Kolkata, Publisher (International): Nova Science Publishers, Inc. Publication Date: October 15, 2024, DOI: <https://doi.org/10.52305/HDVE7184>
4. Edited a Book with Title: “**Calculus and Its Application in Economics and Business**”, Publication Type: National, Publisher: Netaji Nagar Day College, ISBN: 978-81-956899-0-3, Date of Publication: 2022.
5. Edited a Book with Title: “**Differential Equations: Basic Understanding and Applications**”, Publication Type: National, Publisher: Dayadhan Publishers Group, ISBN: 978-93-91097-33-3, Date of Publication: 2022.

Research publications in peer-reviewed journals

1. **Effects of external fields on diatomic molecules under Morse potential and comparison with Rydberg-Klein-Rees data for carbon monoxide**
S K Nayek
Physica Scripta **100(5)**, 55410 (2025). <https://iopscience.iop.org/article/10.1088/1402-4896/adcf60>
Publisher: Institute of Physics Publishing Ltd., U.K., Impact Factor: 2.6 (2025); ISSN: 1402-4896.
2. **Diatomc molecules embedded with Morse potential and under the effect of external fields**
S K Nayek
Eur. Phys. J. Plus **139**, 805 (2024). <https://doi.org/10.1140/epjp/s13360-024-05592-3>
Publisher: Springer, Impact Factor: 2.9 (2024); ISSN No.:2190-5444 (Electronic).
3. **Approximate solutions for diatomic molecules under combined potentials in a global monopole and Aharonov-Bohm flux field**
S K Nayek, B Dutta, B Pradhan
Int. J. Quant. Chem. **124**, (Issue:15) e27460 (2024). <https://doi.org/10.1002/qua.27460>
Publisher: Wiley, Impact Factor: 2 (2024); Online ISSN: 1097-461X.
4. **Combined effect of AB-flux field and inverse square plus Yukawa potential on diatomic molecules placed at point-like global monopole**
B. Dutta, Sujay Kumar Nayek and B. Pradhan
Eur. Phys. J. Plus **139**, 125 (2024). <https://doi.org/10.1140/epjp/s13360-024-04902-z>
Publisher: Springer, Impact Factor: 3.4 (2022); ISSN No.:2190-5444 (Electronic).
5. **Topological defects on the energy spectra of diatomic molecules embedded with shifted Deng-Fan oscillator potential under AB flux field**
B. Dutta, Sujay Kr. Nayek and F. Ahmed
Int. J. Quant. Chem. **124**, (Issue:1) e27267 (2023). <https://doi.org/10.1002/qua.27267>
Publisher: Wiley, Impact Factor: 2.2 (2022); Online ISSN: 1097-461X.
6. **Bound state solutions of diatomic molecules with screened modified Kratzer potential by asymptotic iteration method**
Sujay Kr. Nayek
Eur. Phys. J. Plus **137**, 1205 (2022). <https://doi.org/10.1140/epjp/s13360-022-03425-9>
Publisher: Springer, Impact Factor: 3.911 (2020); ISSN No.:2190-5444 (Electronic).
7. **Ground and doubly excited states of He atom in non-ideal classical plasmas:structural, entanglement and information theoretical measures**
S. Mondal, **Sujay Kr. Nayek** and J. K. Saha
Eur. Phys. J. Plus **137**, 373 (2022). <https://doi.org/10.1140/epjp/s13360-022-02574-1>
Publisher: Springer, Impact Factor: 3.911 (2020); ISSN No.:2190-5444 (Electronic).
8. **Variational Method for Hydrogen Atom Embedded in Non-Ideal Classical Plasmas**
Sujay Kr. Nayek and J. K. Saha
Brazilian Journal of Physics **51**, 927 (2021). <https://doi.org/10.1007/s13538-021-00901-y>
Publisher: Springer, Impact Factor:1.326 (2020); ISSN No.:0103-9733 (Print Edition) and 1678-4448 (Electronic Edition).
9. **Quantum Phase Transition in Symmetric Quantum Three-body System**
A. Sadhukhan, S. Mondal, **Sujay Kr. Nayek**, J. K. Saha, *Euro. Phys. J. D* **75**, 77 (2021)
<https://doi.org/10.1140/epjd/s10053-021-00084-w>
Publisher: Springer, Impact Factor:1.425(2020); ISSN No.:1434-6060 (Print Edition) and 1434-6079 (Electronic Edition).
10. **Structural properties of Li atom under quantum and classical plasmas: A composite variational framework**
S. Mondal, **Sujay Kr. Nayek** and J. K. Saha (2021), *Contributions to Plas. Phys.* **61**, e202100009 (2021).
<https://doi.org/10.1002/ctpp.202100009>
Publisher: Wiley Online Library, Impact Factor:1.563 (2020); ISSN No.:1521-3986 (Online).
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Membership of Academic bodies

- Life time membership of Calcutta Mathematical Society
- Life time membership of Calcutta Institute of Theoretical Physics
- Life time membership of The (Indian) Mathematics Consortium, Co-hosted by IIT Bombay and ICTS-TIFR, Bengaluru (w.e.f 2017).

I do hereby state and acknowledge that the information provided above is true and complete to the best of my knowledge.

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