Curriculum Vitae

Dr. Suvam Singh

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Personal Information

Date of Birth: 18.09.1991
Nationality: Indian
Father's Name: Suryamani Singh
Mother's Name: Abha Singh
Marital Status: Married
Spouse Name: Rupali Lodh

Permanent Address

7, 1st Floor, Nawab Patty Street,
Cossipore, Kolkata
West Bengal 700002
India.

Academic Record

Degree	Board/University	Year Completed	Subjects	%
10	ICSE (CISCE)	2008	English, Hindi, History Civics & Geography, Computer Applications, Environmental Education, Science and Mathematics	88.8
10+2	ISC (CISCE)	2010	English, Hindi, Environmental Education,Physics, Chemistry and Mathematics	93.5
B.Sc. (Hons.)	University of Calcutta	2013	Physics	67
M.Sc.	Indian Institute of Technology (ISM), Dhanbad	2015	Applied Physics	95.8
Ph.D.	Indian Institute of Technology (ISM), Dhanbad	2019	Degree in Physics Title: "Electron and Positron scattering dynamics in atoms and molecules." Ph.D. Supervisor: Prof. Bobby Antony	

Experience

1. Assistant Professor at the **Indian Institute of Information Technology, Vadodara-International Campus Diu (IIIT-ICD)**, from January 2026 - Present

2. Post-doctoral Fellow at the **Max Planck Institute for Nuclear Physics, Heidelberg, Germany** from February, 2020 to May, 2025.

3. Visiting scientist at the **GSI Helmholtz Centre for Heavy Ion Research Ltd., Jena, Germany** from June, 2019 to September, 2019.

Research Interest

- **Quantum dynamics and quantum many-body theory**, with emphasis on collision processes involving electrons, positrons, and photons interacting with atoms, molecules, and their ions.

- **Theoretical studies of atomic, molecular, and ionic systems** of relevance to astrophysics, plasma environments, and fundamental physics.
- **Astrophysical plasmas** of relevance to kilonovae.

Research IDs

1. SCOPUS ID: 57212088486
2. Web of Science ID: AAC-8291-2021
3. ORCID: 0000-0002-2378-1554
4. Google Scholar: https://scholar.google.com/citations?user=_8P8ZuYAAAAJ&hl=en&oi=ao

Technical Skills and Computational Expertise

1. **Programming Languages and Software:** Java, C, Fortran, Python, MATLAB, Origin, Mathematica, Julia.
2. **Computational Packages (with experience):** GRASP (6+ years), FAC (5+ years), AUTOSTRUCTURE (5+ years), JAC (6+ years), UKRmol (10+ years), Quantemol-N (10+ years).

Research Publications

Manuscripts under Review/Preparation

1. L. Isberner, **S. Singh,** M. Grieser, R. von Hahn, Z. Harman, Á. Kálosi, C. H. Keitel, C. Krantz, D. Paul, S. Schippers, A. Wolf, O. Novotný, "Dielectronic recombination of Xe^{3+} at the Cryogenic Storage Ring" (**2026**) (To be submitted)
2. **S. Singh**, et al., "Photodetachment and binding energy study of metastable states of C^{-}" (**2026**) (In preparation)
3. S. Singh, Z. Harman, C.H. Keitel, "Dielectronic recombination of Ne^{2+}, and F^{6+}: using GRASP and FAC, a comparative study" (**2026**) (In preparation)

List of Published Articles

1. **S. Singh**, Z. Harman, C.H. Keitel, "Dielectronic recombination studies of ions relevant to Kilonovae and Nonlocal Thermodynamic Equilibrium Plasma" *Astronomy & Astrophysics,* 700 **(2025)** A110.
2. **S. Singh**, Z. Harman, "Dielectronic recombination studies on Fe^{2+}", *Physical Review A,* 111 (**2025**) 042802.
3. A. Maurya, **S. Singh**, N.P. Pathak, "The Importance of Mesoporous Materials (Silica, Alumina, and Zeolite) as Solid Supports for Metal Complex Catalysts in Organic Transformations", *Journal of Inorganic and Organometallic Polymers and Materials*, 35 (**2024**) 1-21.
4. D. Müll, F. Grussie, K. Blaum, S. George, J. Göck, M. Grieser, R. von Hahn, Z. Harman, Á. Kálosi, C. H. Keitel, C. Krantz, C. Lyu, O. Novotný, F. Nuesslein, D. Paul, V. C. Schmidt, **S. Singh**, S. Sunil Kumar, X. Urbain, A. Wolf, and H. Kreckel, "Metastable states of Si^{-} observed in a cryogenic storage ring", *Physical Review A*, 104 (**2021**) 032811.
5. **S Singh**, D Gupta, B Antony, M Tudorovskaya, J Tennyson, "Electron Scattering Cross Sections for Anthracene and Pyrene", *Journal of Physical Chemistry A*, 124 **(2020)** 7088-7100.
6. D Gupta, H Choi, M-Y Song, **S Singh**, B Antony, K Chakrabarti, J-S Yoon, J Tennyson, "Electron scattering studies of BF and BF_2", *Journal of Physics B: Atomic, Molecular and Optical Physics*, 53 (22) (**2020**) 225203.
7. **S Singh**, P Verma, N Uddin, P Modak, N Sinha, H Tomer, V Singh, B Antony, "Positron collision dynamics for C_2-C_3 hydrocarbons", *Springer Proceedings in Physics, Singapore* **ISAMP-TC7**,

"Quantum Collisions and Confinement of Atomic and Molecular Species, and Photons", 230 (**2019**) 239-249.

8. D Gupta, H Choi, **S Singh**, P Modak, B Antony, D C Kwon, M Y Song, J S Yoon, "Total ionization cross section of cyclic organic molecules", *The Journal of Chemical Physics*, 150 **(2019)** 064313.
9. P Verma, **S Singh**, R Naghma, B Antony, "Electron induced scattering from germane", *The European Physical Journal D*, 72 (12) (**2018)** 207.
10. **S Singh**, D Gupta, B Antony, "Plasma relevant electron scattering cross sections of propene", *Plasma Sources Science and Technology*, 27 **(2018)** 105014.
11. N Sinha, **S Singh**, B Antony, "Theoretical study of positron scattering by group 14 tetra hydrides: A quantum mechanical approach", *International Journal of Quantum Chemistry*, 118 (18) **(2018)** e25679.
12. **S Singh**, D Gupta, B Antony, "Electron and positron scattering cross sections for propene", *Journal of Applied Physics*, 124 **(2018)** 034901.
13. **S Singh**, B Antony, "Positron induced scattering cross sections for hydrocarbons relevant to plasma", *Physics of Plasmas*, 25 (**2018**) 053503.
14. **S Singh**, A Sen, B Antony, "Positron scattering calculations of elastic, total and momentum transfer cross section for alkaline earth atoms", *International Journal of Mass Spectrometry*, 428 (**2018**) 22-28.
15. **S Singh**, R Naghma, J Kaur, B Antony, "Study of elastic and inelastic cross sections by positron impact on inert gases", *The European Physical Journal D* 72 (**2018**) 69.
16. N Sinha, P Modak, **S Singh**, B Antony, "Positron Scattering from Methyl Halides", *The Journal of Physical Chemistry A* 122 (**2018**) 2513–2522.
17. **S Singh**, A Sen, B Antony, "Positron scattering studies of different inelastic channels for group IIA elements", *Chemical Physics Letters*, 692 (**2018**) 242.
18. N Sinha, **S Singh**, B Antony, "Positron scattering total cross sections for alkali atoms", *Journal of Physics B: Atomic, Molecular and Optical Physics*, 51 (**2018**) 015204.
19. **S Singh**, B Antony, "Positronium formation and ionization of atoms and diatomic molecules by positron impact", *Europhysics Letters*, 119 (**2017**) 50006.
20. **S Singh**, B Antony, "Study of inelastic channels by positron impact on simple molecules", *Journal of Applied Physics*, 121 (**2017**) 244903.
21. **S Singh**, S Dutta, R Naghma, B Antony, "Positron scattering from simple molecules", *Journal of Physics B: Atomic, Molecular and Optical Physics*, 50 (**2017**) 135202.
22. P Modak, **S Singh**, J Kaur, B Antony, "Electron scattering from C2-C8 symmetric ether molecules", *International Journal of Mass Spectrometry*, 49 (**2016**) 1-8.
23. **S Singh**, S Dutta, R Naghma, B Antony, "Theoretical Formalism To Estimate the Positron Scattering Cross Section", *The Journal of Physical Chemistry A*, 120 (28) (**2016**) 5685-5692.
24. **S Singh**, R Naghma, J Kaur, B Antony, "Calculation of total and ionization cross sections for electron scattering by primary benzene compounds", *The Journal of Chemical Physics,* 145 (3) (**2016**) 034309.
25. J Kaur, **S Singh**, B Antony, "Electron scattering studies of DMS, DMDS and DMSO homologous series", *Molecular Physics*, 113 (**2015**) 3883-3890.

Lectures/Talks/Publications in Conferences/Otherwise

1. **Invited Lecture**: Dielectronic recombination studies of low charged ions, **Suvam Singh**, **School of Advanced Sciences, Department of Physics**, **VIT Vellore**, Vellore 11 April, 2025.
2. **Invited talk:** Dielectronic recombination study of Xe^{3+}, **Suvam Singh**, Christoph H. Keitel, Zoltan Harman, **NCAMP 2025, IIT-ISM, Dhanbad, India**, 8-11 January, 2025. ISBN:

978-93-342-2234-0

3. **Invited talk:** Low-Charged Ion Interactions in Astrophysical Phenomena, **Suvam Singh**, **IC-AMSI 2024**, Vivekananda Institute Of Professional Studies - Technical Campus, **Delhi, India**, 28-30 August, 2024.
4. **Invited talk:** Dielectronic recombination studies of Xe^{3+} with the relativistic configuration interaction method, **Suvam Singh**, Christoph H. Keitel, Zoltan Harman, **CompAS 2023, Uppsala, Sweden**, 6-9 June, 2023.
5. Dielectronic recombination study of Xe^{3+}, **Suvam Singh**, Christoph H. Keitel, Zoltan Harman, **APiP 2023, IAEA, Vienna, Austria**, 15-19 May 2023, P97.
   Link: https://amdis.iaea.org/media/abstracts/97.pdf
6. **Invited talk:** Spectroscopy of metastable states of Si^-, **S Singh**, C Lyu, C. H. Keitel, Z. Harman, **CompAS 2022, Gdansk/Sopot, Poland**, 1-3 October, 2022.
7. First Dielectronic Recombination Measurements at the Cryogenic Storage Ring, L. Isberner, M. Grieser, R. von Hahn, Z. Harman, Á. Kálosi, C. H. Keitel, C. Krantz, D. Paul, S. Schippers, **S. Singh**, A. Wolf, O. Novotný, **HCI 2022, Matsue, Japan,** Aug 29- Sep 3, ST-16, pg 50; A33, pg 93.
   Link:http://yebisu.ils.uec.ac.jp/hci2022/files/HCI2002_BoA_220827.pdf
8. **Contributed talk:** Spectroscopy of metastable states of Si^-, **S. Singh**, C. Lyu, C.H. Keitel, Z. Harman, **DPG conference Erlangen 2022**, March 14-18.
   Link:https://www.dpg-verhandlungen.de/year/2022/conference/erlangen/part/a/session/17/contribution/2?lang=en
9. Dielectronic recombination of Ne^{2+} at the Cryogenic Storage Ring, L. Isberner, M. Grieser, R. von Hahn, Z. Harman, Á. Kálosi, C. H. Keitel, C. Krantz, D. Paul, S. Schippers, **S. Singh**, A. Wolf, O. Novotný, **DPG conference Erlangen 2022**, March 14-18.
   Link:https://www.dpg-verhandlungen.de/year/2022/conference/erlangen/part/a/session/17/contribution/4?lang=en
10. Photodetachment cross sections and radiative lifetimes of the metastable states of Si^- ions, **S. Singh**, C. Lyu, Z. Harman, C.H. Keitel, Virtual International Conference on Photonic, Electronic and Atomic Collisions" **(ViCPEAC 2021)**, July 20-23, 2021. Page 442
    Link:https://static.pheedloop.com/media/events/EVEKZOKQNPUFR/sessions/files/SESGAW2K479PE4E0D_ViCPEAC2021_Abstract_Book-FINAL.pdf
11. Photodetachment studies of the metastable states of Si^- ions at the Cryogenic Storage Ring, D. Müll,..,**S. Singh**, et al, Virtual International Conference on Photonic, Electronic and Atomic Collisions" **(ViCPEAC 2021)**, July 20-23, 2021. Page 437
    Link:https://static.pheedloop.com/media/events/EVEKZOKQNPUFR/sessions/files/SESGAW2K479PE4E0D_ViCPEAC2021_Abstract_Book-FINAL.pdf
12. Electron induced scattering cross sections for anthracene and pyrene, **Suvam Singh**, Dhanoj Gupta, Vishwanath Singh, Bobby Antony, 13th Asian International Seminar on Atomic and Molecular Physics **(AISAMP 13)**, Organized by IIT Bombay and TIFR, Mumbai, India, December 3-8, **2018**.
13. Electron and Positron Induced Scattering from Propene; **Suvam Singh**, Dhanoj Gupta, Bobby Antony, **Joint ICTP-IAEA School and Workshop 2018**, Trieste, Italy, from 16 to 20 April 2018
    Link:https://www-amdis.iaea.org/Workshops/ICTP2018/AbstractsContributed/ICTP2018SinghSuvam.pdf
14. Positron collision dynamics for C_2-C_3 hydrocarbons; **Suvam Singh**, Pankaj Verma, Vishwanath Singh, Bobby Antony, **ISAMP-TC 7, 6 to 8th January, 2018**, IISER & IIT, Tirupati, Andhra Pradesh, India.
    http://www.iisertirupati.ac.in/isamp-tc7/files/ISAMP-TC7_e-Conspectus.pdf
15. Electron interaction cross section for complex biomolecules; Nidhi Sinha, Paresh Modak, **Suvam Singh**, Himani Tomer, Pankaj Verma, Jaspreet Kaur and Bobby Antony, **33rd Symposium on Chemical Physics, 2017,** University of Waterloo, Ontario, Canada.
    Link: http://scp.uwaterloo.ca/Doc/SCP2017.pdf
16. Quantum-mechanical calculations of cross sections for positron scattering with inert gases; **Suvam Singh**, Jaspreet Kaur, Nidhi Sinha and Bobby Antony, poster number TU-136, **ICPEAC XXX, 2017**, Cairns Convention Centre, Cairns, Queensland, Australia.

17. A novel approach to study positron scattering from simple molecules; **Suvam Singh**, Nidhi Sinha, Anamika Sen, Jaspreet Kaur and Bobby Antony, pg 170, poster number PS-3-38, **NCAMP XXI, 2017**, Physical Research Laboratory, Ahmedabad, Gujarat, India.
18. Electron Scattering By Silane; P Verma, **S Singh**, P Modak, J Kaur and B Antony; **IAEA Technical Meeting on Uncertainty Assessment and Benchmark Experiments for Atomic and Molecular Data for Fusion Applications, 2016**, Vienna, Austria.
Link: https://www-amdis.iaea.org/meetings/UQ2016/Abstracts/Verma.pdf
19. Electron Interactions With Plasma Reactive Carbon Tetrachloride Molecule: An Extensive Cross Section Study; J Kaur, P Verma, **S Singh**, P Modak and B Antony; **IAEA Technical Meeting on Uncertainty Assessment and Benchmark Experiments for Atomic and Molecular Data for Fusion Applications, 2016**, Vienna, Austria.
Link: https://www-amdis.iaea.org/meetings/UQ2016/Abstracts/Kaur.pdf
20. Positron Scattering Cross Sections For Plasma Relevant Hydrocarbons; **Suvam Singh**, Jaspreet Kaur and Bobby Antony; **IAEA Technical Meeting on Uncertainty Assessment and Benchmark Experiments for Atomic and Molecular Data for Fusion Applications, 2016**, Vienna, Austria.
Link: https://www-amdis.iaea.org/meetings/UQ2016/Abstracts/Singh.pdf
21. Electron induced ionization and Total cross section of Boron, Aluminum and Gallium trihalides; Pankaj Verma, Paresh Modak, **Suvam Singh**, Nidhi Sinha and Bobby Antony, pg 132, poster number 72, **NCLC 2016,** Indian Institute of Technology (Indian School of Mines), Dhanbad.
22. Electron impact cross sections for c2-c8 symmetric ether molecules; Paresh Modak, **Suvam Singh**, Pankaj Verma, Jaspreet Kaur and Bobby Antony, pg 59, **ICAMDATA 2016,** NFRI (Gunsan, Rep. of Korea).
Link: http://icamdata2016.nfri.re.kr/files/ICAMDATA_Program_Book.pdf
23. Positron scattering cross section for simple molecules; **Suvam Singh**, Rahla Naghma, Jaspreet Kaur and Bobby Antony, pg 58**, ICAMDATA 2016,** NFRI (Gunsan, Rep. of Korea).
Link: http://icamdata2016.nfri.re.kr/files/ICAMDATA_Program_Book.pdf
24. Cross section data for electron/positron scattering: a theoretical approach; Bobby Antony, Jaspreet Kaur, Pankaj Verma, **Suvam Singh**, Paresh Modak, Nafees Uddin pg 34, **ICAMDATA 2016,** NFRI (Gunsan, Rep. of Korea).
Link: http://icamdata2016.nfri.re.kr/files/ICAMDATA_Program_Book.pdf
25. Positron impact total cross section for noble gases from ionization threshold to 5000eV; **Suvam Singh**, Sangita Dutta, Rahla Naghma and Bobby Antony; PC_PP_57, **q-PaCE 2016,** Indian School of Mines, Dhanbad.

Fellowships, Awards, Recognition

Fellowship/Award/Recognition	Institute/Awarded by	Year
Certificate of Excellence for ISC Result	Kolkata Municipal Corporation, Kolkata	2010
International Travel Grant under ITS, SERB to attend ICPEAC 2017, Cairns, Australia	Science and Engineering Research Board, DST, Government of India	2017
Travel Grant to attend the 2018 Joint ICTP-IAEA School and Workshop at ICTP, Trieste, Italy	The Abdus Salam International Centre for Theoretical Physics (ICTP)	2018
Best Poster Prize at 2018 Joint ICTP-IAEA School and Workshop at ICTP, Trieste, Italy	Physical Chemistry Chemical Physics, Royal Society of Chemistry	2018

Helmholtz Institute Fellowship (GSI), Germany for visiting scientists for 3 months	Helmholtz Institute Jena, Germany	2019
Max Planck Society Fellowship for Post-Doctoral Fellow	Max Planck Institute for Nuclear Physics, Heidelberg, Germany	2020-2022

National and International Projects, Internships, Conferences and Schools attended

Projects/Internships/Schools attended

1. "Calculation of decay processes in ions", **Helmholtz Institute Jena**, Jena, Germany, 19th June-11th September, 2019. *(Funded by Helmholtz Institute Fellowship (GSI), Germany)*
2. Joint ICTP-IAEA School and Workshop on Fundamental Methods for Atomic, Molecular and Materials Properties in Plasma Environments, 16-20th April, 2018, **ICTP - Miramare, Trieste, Italy.** *(Funded by ICTP, Trieste, Italy)*
3. TIFR School on Advances in Atomic Collisions (TISAAC 2017), 5th March-18th March, **Tata Institute of Fundamental Research,** Mumbai, 2017, India. *(Funded by TIFR, Mumbai)*
4. "IR Camera diagnostics for measuring Neutral Beam Footprints"; at **"Institute for Plasma Research, Gandhinagar",** 29th May-11th July, 2014, Gujarat, India. *(Funded by IPR, Gandhinagar)*
5. "Gamma Ray detections using HPGe detectors"; at **"Department of Atomic Energy, Variable Energy Cyclotron Centre"** 5th Dec, 2013-4th Jan 2014, Kolkata, India. *(Self-funding)*

Conferences attended

1. 24th National Conference on Atomic and Molecular Physics (**NCAMP 2025**) 8-11 January 2025, IIT-ISM Dhanbad, India. *(Funded by MPIK, Heidelberg)*
2. International Conference on Advanced Materials for Sustainable Innovation (**IC-AMSI 2024**), Delhi, India, 28- 30 August 2024.*(Funded by MPIK, Heidelberg)*
3. Computational Atomic Structure **(CompAS)** meeting **2023,** Uppsala, Sweden, 6-9 June, 2023. *(Funded by MPIK, Heidelberg)*
4. Atomic Processes in Plasmas **(APiP) 2023,** IAEA, Vienna, Austria, 15-19 May 2023. *(Funded by MPIK, Heidelberg)*
5. Computational Atomic Structure **(CompAS)** meeting **2022**, Gdansk/Sopot, Poland, 1-3 October, 2022. *(Funded by MPIK, Heidelberg)*
6. Atomic, Molecular Plasma Physics and Quantum Optics and Photonics Section (SAMOP), **DPG conference**, Erlangen 2022, March 14-18. *(Funded by MPIK, Heidelberg)*
7. "32nd Virtual International Conference on Photonic, Electronic and Atomic Collisions" **(ViCPEAC 2021)**, July 20-23, 2021. *(Funded by MPIK, Heidelberg)*
8. "13th Asian International Seminar on Atomic and Molecular Physics" **(AISAMP 13)**, December 03-08, 2018 , Mumbai, India, Organized by Tata Institute of Fundamental Research (TIFR) & Indian Institute of Technology Bombay (IITB). *(Funded by IIT(ISM), Dhanbad)*
9. Indian Society of Atomic and Molecular Physics-Topical Confrence 7 (**ISAMP TC-7**), 6-8th Jan, 2018, IISER & IIT, Tirupati, Andhra Pradesh, India. *(Funded by IIT(ISM), Dhanbad)*
10. 30th International Conference on Photonic, Electronic and Atomic Collisions (**ICPEAC XXX**), 2017, Cairns Convention Centre, Cairns, Queensland, Australia. 26th July to 1st August, 2017. *(Funded by ICPEAC XXX and ITS, SERB, Govt. of India)*
11. "21st National Conference on Atomic and Molecular Physics " (**NCAMP XXI 2017**), 3rd to 6th Jan, 2017, Physical Research Laboratory, Ahmedabad, Gujarat, India. *(Funded by IIT(ISM), Dhanbad)*
12. "National Conference on Liquid Crystals" (**NCLC 2016**), 6th to 9th Dec, 2016, Indian Institute of Technology (Indian School of Mines), Dhanbad, India. *(Funded by IIT(ISM), Dhanbad)*

13. "Topical Conference on 'Charged Particle Collisions and Electronic Processes in Atoms, Molecules and Materials'(**q-PaCE-2016**), 9th to 11th Jan, 2016, Indian Institute of Technology (Indian School of Mines), Dhanbad, India. *(Funded by IIT(ISM), Dhanbad)*

Teaching Experience/Students Guided

1. Teaching Assistant in taking tutorials and evaluation of assigenments in the subject course Atomic and Molecular Physics, Quantum Physics, Mathematical Physics, Computational Physics of M.Sc and B.Tech Engg. Physics.
2. Taking lab classes in B.Tech., Integrated M.Sc. and M.Sc. students (2015 to 2019), Department of Applied Physics, IIT-ISM, Dhanbad.
3. **Guided** a UG student for his Bachelor Project- Cyril Flury-Herard from Aix-Marseille University, France in 2023 on the Thesis titled 'Dielectronic recombination of low charged ions'.
4. **Co-supervised two M.Sc. students**, Sangita Dutta (2016) and Anamika Sen (2017), for their Master's projects at IIT (ISM) Dhanbad, under the primary supervision of my Ph.D. advisor.
5. **Co-supervised two B.Tech. students**, Vikrant Singh Bais (2018) and Vishwanath Singh (2019), for their B.Tech projects at IIT (ISM) Dhanbad, under the primary supervision of my Ph.D. advisor.
6. **Co-supervised a B.Tech. Student**, Amey Yeole, from IISER Bhopal for his Project under the primary supervision of my Ph.D. advisor.

Certifications / Online Courses

1. ***Machine Learning Specialization*** – Coursera (Online, 3 months, 2025)
   (Supervised Learning, Advanced Learning Algorithms, Unsupervised Learning, Recommenders, Reinforcement Learning)

Other Informations (Memberships/reviewer/editor/Conf. Organiser)

1. **Member** of the *Indian Society of Atomic and Molecular Physics*. Membership Number 1567.
2. **Member** of the *German Physical Society (DPG)*: Membership Number 220475
3. **Reviewer** of *The European Physical Journal, Springer, Journal of Physics B (IOP), Entropy (MDPI), Physics Rev. A.*
4. **Guest Editor***: Atoms (MDPI) Special Issue* "Many-Particle Dynamics in Collisions of Electrons, Positrons and Photon"
5. **Organising member** of *q-PaCE-2016 international conference* at Indian Institute of Technology (ISM), Dhanbad.
6. **Member of International Advisory Committee** in the "International Conference on Advanced Materials for Sustainable Innovation (*IC-AMSI 2024*)" held during 28th- 30th August 2024, organized by VIPS-TC, School of Engineering and Technology sponsored by SERB and DRDO.

References

1. **Prof. Bobby Antony** (Ph.D. Supervisor), Professor, Department of Physics, IIT ISM Dhanbad, Jharkhand, India; Phone number: +91 9470194795; E-mail: bobby@iitism.ac.in
2. **PD Dr. Zoltán Harman** (Postdoc Supervisor), Leading Scientist and Professor, Max Planck Institute for Nuclear Physics, Heidelberg, Germany; Phone number: +49 1703623431; E-mail: zoltan.harman@mpi-hd.mpg.de
3. **Dr. Dhanoj Gupta** (Research Collaborator), Assistant Professor, Department of Physics, School of Advanced Sciences, VIT Vellore, Vellore, India; Phone number: +91 8649861514; Email: dhanoj.gupta@vit.ac.in