Personal Profile

Name (in full)	SUPRIYA KUMAR CHAUDHURI
Current Position	Post Doctoral Fellow, Indian Institute of Science Education and Research Kolkata, Mohanpur-741246, Nadia, West Bengal, India
Past Position	Post Doctoral Fellow, Indian Institute of Astrophysics, Bangalore-560034, Karnataka, India
Father's Name	Sankar Chaudhuri
Address	Vill. + P.O.- Parshyampur, P.S.- Pursurah, Dist.- Hooghly, Pin- 712401, West Bengal, India.
Date of Birth	03/04/1991
Sex	Male
Marital Status	Unmarried
Caste	General
Nationality	Indian
Email	supriyo.chaudhuri1991@gmail.com
Contact Number	+91 8902278625 +91 7003015106

Academic Profile

Degree Name	Board/ University	Institution	Year of passing	Marks (%)
Ph.D in Physics (Atomic Physics)	Ramakrishna Mission Vivekananda University	Ramakrishna Mission Vivekananda Educational and Research Institute	2018	95% (course-work)
M.Sc in Physics	West Bengal State University	West Bengal State University	2013	59.13%
B. Sc. in Physics (Hons.)	West Bengal State University	Ramakrishna Mission Vivekananda Centenary College	2011	62.63 %
Higher Secondary (Science)	WBCHSE	Shyampur High School	2008	83.5 %
Madhyamik	WBBSE	Shyampur High School	2006	84 %

Ph.D thesis title, Guide's Name, Institute/Organization/University, Date and Year of Award:

Ph.D thesis title: ATOMIC STRUCTURE CALCULATIONS UNDER EXTERNAL CONFINEMENT

Guide's Name: Prof. Prasanta Kumar Mukherjee

Institute: Ramakrishna Mission Vivekananda Educational and Research Institute

Year of Award: 24th January, 2018

Achievements:

- Successfully completed coursework for Ph.D under Ramakrishna Mission Vivekananda University with CGPA 9.50.
- Qualified the National Eligibility Test for Lectureship (NET) conducted by U.G.C-C.S.I.R, Govt. of India held on June, 2013 with All India Rank 44.
- Part time project on “Gamma Radiation Spectroscopy” at Saha Institute of Nuclear Physics (SINP), Kolkata, India, 2013
- Qualified Joint Admission Test for M.Sc 2011 (IIT JAM-2011) with All India Rank 415.
- Received Merit-cum-Means Scholarship sponsored by West Bengal Government during 2007 to 2013.

Membership of Academic bodies

- Life time membership of Indian Society for Atomic, Molecular and Optical Physics (ISAMP).

Computer Knowledge & Computational Skill

- Operating Systems:Working experience in Linux, UNIX, Windows and DOS environments.
- Software tools: Working experience with MS Office, Origin, Matlab, Maple, Gnuplot, Sagemath, Latex.
- Programming Language: Working experience with FORTRAN 77/90, C, C++, PYTHON.

Teaching Experience

1. **Assisted** five M.Sc final year physics students for their M.Sc project work (under my Ph.D guide’s supervision) in the session 2014-2016 at Ramakrishna Mission Vivekananda University.

2. **Guest Lecturer** at Ramsaday College, College Road, Amta, Howrah, West Bengal 711401 from 01/09/2017 to 13/10/2018. [Topics: Curvilinear coordinate systems, Matrices, Determinant, Python, (1^{st} Sem. July-October, 2018) Fourier Series and Fourier transform, Conduction of Heat, (1^{st} year, September, 2017-May, 2018), Interference and Diffraction of light waves, (2^{nd} year, September, 2017-May, 2018) Elementary particles, Computer-Fundamentals and Programing in C (3^{rd} year, September, 2017-May, 2018) at **Graduate level**]

3. **Honorary Teaching Faculty** at Ramakrishna Mission Vivekananda Centenary College, Rahara, Kolkata-700118, West Bengal, from 01/04/2021 to 30/11/2021. [Topics: Ordinary Differential Equations, Laws of Motion, Momentum and Energy, Rotational Motion (1^{st} Sem and 3^{rd} Sem) at **Graduate level]**

Research Interest

- Development of theoretical models for structure calculations of atoms and ions under various types of confinements (fullerene cage confinement, classical plasma confinement and Quantum plasma confinement) and ab-initio calculations on the structural properties of such systems.
- **Brief details of my work:**
  I have been working on the effect of quantum confinement on the atomic structural properties using ab initio quantum chemical methods. I have chosen classical and quantum plasma as an external confinement to investigate their effect on the energy levels and spectroscopic properties of low Z atomic systems, a state of the art research topic in atomic and plasma physics. The other external confinement I have chosen is the atoms endohedral to fullerene cages. I have applied state of the art methodologies like the time dependent coupled Hartree-Fock theory (TDCHF) and equation of motion coupled cluster method (EOMCC) to estimate spectroscopic data for confined atomic systems. The spectroscopic data under external environment is very

much important for useful applications in atomic, plasma and astrophysics. Estimation of frequency dependent linear response properties like dynamic polarizabilities and nonlinear response properties such as dynamic hyperpolarizabilities of atomic systems (atoms or ions) and their excitation properties under external confinement are the major objective and orientation of my current research work.

Presentations in the National Conferences

1. Poster presented at the “UGC Sponsored National Seminar On Introductory Astronomy And Astrophysics” held at Ramananda College, Bishnupur, Bankura, India on 26 th & 27 th November, 2014.
2. Poster Presented at the “Two day workshop on Frontiers in Atomic, Molecular & Optical Sciences (FAMOS-2016) ” held at Raman Centre for Atomic, Molecular and Optical Sciences (RCAMOS) of Indian Association for the Cultivation of Science, Jadavpur, Kolkata, India on 19 th & 20 th February, 2016.
3. Participated in the “UGC Sponsored National Seminar On String Theory: The Present and The Future” held at Department of Physics, Ramakrishna Mission Vidyamandira, Howrah, India on 16 th & 17 th September, 2016.
4. Poster Presented at the “UGC Sponsored National Seminar On Frontiers in Modern Physics” held at Department of Physics, Jogamaya Devi College in collaboration with Centre for Interdisciplinary Research and Education, Kolkata, India on 21th & 22th November, 2016.
5. Poster Presented at the “ 21 st National Conference on Atomic and Molecular Physics (NCAMP-2017)” held at Physical Research Laboratory, Ahmedabad, india during January 3 to 6 , 2017.
6. Participated in the “National Seminar on Recent Development in Plasma Physics” jointly organized by Centre for Plasma Studies in collaboration with Dept. of Instrumentation Science, Jadavpur University & Advanced Centre for Nonlinear and Complex Phenomena, on 27 February, 2017.
7. Participated in the TIFR school on Advances in Atomic Collisions (TISAAC 2017) held at HBCSE campus, TIFR, Mumbai during March 05 - March 18, 2017.
8. Oral presentation in the “ Prof. M. R. Gupta Memorial National Seminar” jointly organized by Centre for Plasma Studies in collaboration with Dept. of Instrumentation Science, Jadavpur University & Advanced Centre for Nonlinear and Complex Phenomena, on 4 th August, 2017.
9. Participated in the “SERC school on electron collisons with atomic systems” held at Ramakrishna Mission Residential College, Narendrapur, W.B. during December 4 to December 22, 2017 and given talk in a session on my research topics.
10. Oral presentation at Indian Institute of Astrophysics on 31 st October, 2019 on the topic Spectroscopy of low lying transitions of noble gas atom confined in a fullerene cage : A theoretical study.
11. Participated in the webinar organised by the Department of Physics, Burdwan Raj Colege, W.B., India on Astronomy & Astrophysics, during June 18-19, 2020.
12. Participated in the national webinar on “Our Cosmic Consciousness” organised by the Department of Mathematics, Servite Arts and Science College for Women, Tamilnadu, India, on 29th June 2020.
13. Participated in the national webinar on “Contemporary Trends in Physical Science” at Dr Meghnad Saha College, Ranipur, Tilna, Itahar, Uttar Dinajpur, West Bengal 733128, India, on 26th July, 2020.
14. Participated in the online school organised by Center for Atomic, Molecular and Optical Sciences & Technologies (CAMOST), IIT and IISER Tirupati, Tirupati-517507, Andhra Pradsh, India on “ Short Online Course on Quantum Optics” during July 19 - 30, 2021.
15. Participated in the virtual workshop on “Density Funtional Theory and Its Applications” organised by Department of Physics, Assam University, Silchar-788011, Assam, India during September 8-12, 2021.

Presentations in the International Conferences

1. Participated in the “ICTS School & Discussion Meeting on Frontiers in Light-Matter Interactions” held at Indian Association for the Cultivation of Science (IACS), Jadavpur, Kolkata, India on 8 th to 22 th December, 2014.

2. Poster Presented at the “International Topical Conference on Charged Particle Collisions and Electronic processes in Atoms, Molecules and Materials (q-PaCE 2016)” held at Indian School of Mines, Dhanbad, India on 9 th to 11 th January, 2016.

3. Poster presented at the “6 th International Conference on Perspectives in Vibrational Spectroscopy (ICOPVS-2016)” held at University of Lucknow, Lucknow, India on 5th to 8th November, 2016.

4. Participated in a special conference on "Chemical elements in the Universe: origin and evolution'' to celebrate "150 years of the periodic table" held at Indian Institute of Astrophysics, Bangalore, India during December 16th to 19th , 2019.

5. Participated in the international webinar on "Earthquake modelling: Physics-based approaches" organised by the Department of Physics, in collaboration with IQAC, Scottish Church College, on 6th October, 2020.

Research Publications

1. ***Hyperpolarizability of two electron atoms under exponential cosine screened coulomb potential.***
Supriya K. Chaudhuri*, Prasanta K. Mukherjee, Burkhard Fricke*
Physics of Plasmas 22, 123120 (2015); Impact factor 1.913

2. ***Dynamic polarizability and electric multipolar transitions in two electron atom under exponential cosine screened coulomb potential.***
Supriya K. Chaudhuri*, Lucas Modesto-Costa, Prasanta K. Mukherjee*
Physics of Plasmas 23, 053305 (2016); Impact factor 1.913

3. **Spectroscopy of low lying transitions of He confined in a fullerene cage.**
Supriya K. Chaudhuri*, Prasanta K. Mukherjee, Burkhard Fricke*
European Physical Journal D , 70, 196 (2016); Impact factor 1.393

4. ***Atomic structure under external confinement: Effect of plasma on the spin orbit splitting, relativistic mass correction and Darwin term for hydrogen like ions.***
Supriya K. Chaudhuri, *Prasanta K. Mukherjee, Burkhard Fricke*
European Physical Journal D , 71, 71 (2017); Impact factor 1.393

5. ***A confinement induced spectroscopic study of noble gas atoms using equation of motion architecture: Encaptulation within fullerene's voids***
Supriya K. Chaudhuri, *Rajat K. Chaudhuri, Prasanta K. Mukherjee, Sudip Chattopadhyay*
Journal of Chemical Physics , 147, 034111 (2017); Impact factor 2.991

6. ***Equation of motion approach for describing allowed transitions in Ne and Al $^{3+}$ under classical and quantum plasmas***
Supriya K. Chaudhuri, *Prasanta K. Mukherjee, Rajat K. Chaudhuri, Sudip Chattopadhyay*
Physics of Plasmas, 25, 042705 (2018); *Impact factor 1.913*

7. ***Time dependent variation perturbation calculation of two photon transition probability and hyperfine shift in hydrogen atom under plasma environment***
Supriya K. Chaudhuri, Sukhamoy Bhattacharyya, *Rajat K. Chaudhuri, Prasanta K. Mukherjee,*
Physics Letters A, 402, 127343 (2021); *Impact factor 2.087*

8. ***Spectroscopy of He atom encapsulated in C_{60} cage : Low lying Magnetic dipolar (M1) and magnetic quadrupolar (M2) transitions***
Supriya K. Chaudhuri
(Submitted in *Journal of Quantitative Spectroscopy and Radiative Transfer, 2022)*

9. ***Tune out wavelengths in Ne and Al^{3+} under classical and quantum plasma environment***
Supriya K. Chaudhuri
(Ms under preparation)

10. ***Correlation resonances of Ne isoelectronic sequence under strongly coupled plasmas.***
Supriya K. Chaudhuri
(Ms under preparation)

Projects

Effect of external confinement on the spectroscopic properties of many electron closed shell systems.
(Completed at **Indian Institute of Astrophysics** as a post doctoral research proposal, 02/11/2018 to 01/02/2021)

References

Prof. Prasanta K. Mukherjee (Thesis Supervisor)
Honorary Professor
Department of Physics
Ramakrishna Mission Vivekananda University
Belur Math, Howrah, 711202, W.B., India
Phone: 00913326549999/+91-9433830586
Fax: 00913326544640

Honorary Professor
Physics Department
Acharya Prafulla Chandra College
New Barrackpore, Kolkata 700131, India

Ex. Sr. Professor
Department of Spectroscopy
Indian Association for the Cultivation of Science
Jadavpur, Kolkata 700 032, India
E-mail: profpkmukherjee@gmail.com

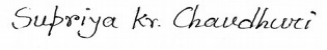
Prof. Lokesh C. Tribedi
Professor
Dept. of Nuclear and Atomic Physics,
T.I.F.R,Colaba, Mumbai, 700005, India
Phone: 022-22782267
Fax: 22804610
E-mail: lokesh@tifr.res.in
ltribedi@gmail.com

Prof. Burkhard Fricke
Honorary Professor
Institute of Physics
University of Kassel
D-34109 Kassel, Germany
Phone: (0561) 804-4529/4785
Telefax (0561) 804-4006
E-Mail : fricke@physik.uni-kassel.de

Prof. Rajat K. Chaudhuri
Professor
Indian Institute of Astrophysics
Bangalore 560034, India
Phone: (080)-2553 0672 (O)/ (080)-2571 0112 (R)
E-mail: rkchaudh@yahoo.com
rkchaudh@iiap.res.in

Dr. Tapas Kumar Ghosh
Associate Professor
Department of Physics
Diamond Harbour Women's University
South 24 Parganas, West Bengal- 743368, India
E-mail: tapaskrg@yahoo.com

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



SUPRIYA KUMAR CHAUDHURI