

DR. SUMAN CHOWDHURY

Research Scientist
Skolkovo Institute of Science and Technology, Moscow, Russia
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OBJECTIVE

I have been working on studying structural, electronic, optical and magnetic properties of 2D materials using Density Functional Theory (DFT). My publications stand testimony to my strong research carried out during my doctoral studies and I aim to pursue a career in a research intensive environment where I can push the frontiers of computational condensed matter physics.

Present Status :

Research Scientist at Skolkovo Institute of Science and Technology, Skolkovo Innovation Center, 3 Nobel Street, Moscow 121205, Russia

Supervisor : **Prof. Artem R. Oganov**

Previous Employment :

Assistant Professor of Physics at Bangabasi College, Kolkata, West-Bengal, India

ACADEMIC QUALIFICATIONS

PhD in Theoretical Condensed Matter Physics (2017) Supervisor – i) <u>Prof. Debnarayan Jana</u> (University of Calcutta, Dept. of Physics) ii) <u>Late Prof. Abhijit Mookerjee</u> (S. N. Bose National Centre for Basic Sciences)	University of Calcutta, Kolkata, India	2012-2017
Master of Science in Physics (M.Sc),	West Bengal State University, North 24 Parganas, India	2010-2012
Bachelor of Science (B.Sc) in Physics (Honours)	Presidency College, Kolkata, India	2007-2010

TECHNICAL SKILLS

UNIX Bash scripting - Working Proficiency
SIESTA - Excellent Proficiency
GAUSSIAN-09-Working Proficiency
FORTRAN 77 – Working Proficiency
Python – Working Proficiency
C – Working Proficiency
GNUPLOT - Excellent Proficiency

LATEX - Excellent Proficiency
OriginLab - Working Proficiency
VASP – Excellent Proficiency
Phonopy - Excellent Proficiency
BoltzTrap - Excellent Proficiency
ShengBTE - Excellent Proficiency
Quantum Espresso - Working Proficiency

ACADEMIC ACHEIVEMENTS, AWARDS & GRANTS

Top rank in M.Sc	Govt. of West Bengal	2012
Qualified National Eligibility Test (NET) in 2012	Govt. of India	2012
Qualified Graduate Aptitude Test in Engineering (GATE)	Govt. of India	2012
Awarded DST INSPIRE Fellowship for pursuing 5 years Ph.D Program	Govt. of India	2012
Young faculty award in Science Teaching	Venus International Foundation, Chennai, India	2018

RESEARCH INTEREST

Theoretical condensed matter physics : Crystal structure prediction using evolutionary algorithm USPEX, electronic, optical, magnetic, vibrational, transport and thermoelectric properties of different 2D materials. Materials under high pressure. Properties of electrdes at ambient and high pressure. Properties of 1-Dimensional linear Carbon chain.

ACADEMIC VISIT

Institute of Physics (IOP) (2016), National Institute of Science Education and Research (NISER) (2016)

SEMINARS/CONFERENCES/WORKSHOPS

- 1) Attended India-UK Scientific Seminar on “**From Graphene Analogues to Topological Insulators**” (Vedic Village, 2014) in 2014
- 2) Attended International Seminar on “**Bringing the Nanoworld Together**” (Saha Institute of Nuclear Physics) in 2014
- 3) Poster presented at the Indo-Sweden-Nepal Conference on “**Functional materials for today and tomorrow**” (Hotel Hindustan International, Kolkata) in 2015
- 4) Poster presented at the **Asian Consortium for Computational Material Science (ACCMS)** - Theme meeting (SRM University, Chennai, India) in 2016
- 5) Poster presented at the International Symposium on **Semiconductor Materials and Devices (ISSMD-4)** at Jadavpur University in March 2017
- 6) Poster presented at National Seminar on “**Advancement in Modern Physics**” (Narendrapur Ramkrishna Mission Residential College, Narendrapur, Kolkata) in 2013

- 7) Attended workshop on “**Application of Radiation in Physical, Chemical and Life Sciences**” (CRNN, Kolkata) in 2013
- 8) Poster presented at **Condensed Matter Days** 2014 (University of Calcutta, Kolkata) in 2014
- 9) Poster presented at **Condensed Matter Days** 2015 (Visva Bharati University, Birbhum, West Bengal) in 2015.
- 10) Invited for a talk at National Seminar on “**Mathematics and its impact on Natural Sciences**” (Bangabasi Morning College, Kolkata) in 2015
- 11) Invited for a talk at National Workshop on “**Material Science and Technology**” (Maulana Azad College, Kolkata) in 2015
- 12) Invited for a talk at National Seminar on “**Functional Materials : Recent Trends**” (Presidency University, Kolkata) in 2016
- 13) Demonstrator of SIESTA software package at “**Two-day National Level Workshop on Advances in Condensed Matter Physics with special emphasis on Biological Systems for Faculty Development**” held at St. Xavier's College, Kolkata in 2016
- 14) Resource person at “**A Pre-Masters Workshop in Theoretical Physics**”, organized by Bangabasi College, Kolkata from May 15-19, 2017
- 15) Attended “**A ONE DAY WORKSHOP ON CBCS PHYSICS SYLLABUS**”, organized by Bangabasi College, Kolkata on 7th May, 2018
- 16) Attended “**Two Day Workshop on Python Program**”, organized by Department of Physics, Scottish Church College, Kolkata on 28th -29th May, 2018.
- 17) Attended “Computational Materials Program of Excellence”, organized by Skoltech Center for Energy Science and Technology (CEST), at Moscow, Russia, on 4th-6th September, 2019.

REFEREED PUBLICATIONS (Total Google Scholar Citations : 360)

1. **Suman Chowdhury**, Santu Baidya, Dhani Nafday, Soumyajyoti Halder, Mukul Kabir, Biplab Sanyal, Tanusri Saha-Dasgupta, Debnarayan Jana, Abhijit Mookerjee, “*A real-space study of random extended defects in solids: Application to disordered Stone–Wales defects in graphene*”, *Physica E*, 61, (2014), 191.
2. Palash Nath, **Suman Chowdhury**, D. Sanyal, Debnarayan Jana, “*Ab-initio calculation of electronic and optical properties of nitrogen and boron doped graphene nanosheet*”, *Carbon*, 73, (2014), 275.
3. Arnab Majumdar, **Suman Chowdhury**, Palash Nath, Debnarayan Jana, “*Defect induced magnetism in planar silicene: a first principles study*”, *RSC Advances*, 4, (2014), 32221.
4. **Suman Chowdhury**, Ritwika Das, Palash Nath, Debnarayan Jana, D. Sanyal, “*Modifications of Optical properties of Graphene by Boron (B) and Nitrogen (N) substitution*”, chapter 42, CRC Press/Taylor & Francis, 2015, ISBN 9781482253948 - CAT# K23939.
5. Ritwika Das, **Suman Chowdhury**, Arnab Majumdar, D. Jana, “*Optical Properties of P and Al doped Silicene : A First Principles Study*”, *RSC Advances*, 5, (2014), 41.
6. **Suman Chowdhury**, Banashree Sadhukhan, Santu Baidya, Dhani Nafday, Tanushri Saha-Dasgupta, Debnarayan Jana, Abhijit Mookerjee, “*Configuration and self- averaging in disordered systems*”, *Ind. J. Phys.*, 90, (2016), 649-657.

7. **Suman Chowdhury**, Palash Nath, Debnarayan Jana, "Shape dependent optical property Silicene Nanodisks : A first Principles Study", J. Phys. Chem. Sol., 83, (2015), 32.
8. **Suman Chowdhury**, Debnarayan Jana, Abhijit Mookerjee, "Conductance of disordered graphene sheets : a real space approach", Physica E, 74, (2015), 347.
9. **S. Chowdhury**, A real-space study of random defects in solids : application to disordered graphene (UGC-Sponsored National Seminar on Mathematics and its impact on Natural Sciences) Proceedings, Bangabasi Morning College, Kolkata, India, Academic Publisher, 68, ISBN : 978-93-83420-83-4 (2015).
10. Ritwika Das, **Suman Chowdhury**, Debnarayan Jana, "A first principles approach to magnetic and optical properties in single-layer graphene sandwiched between boron nitride monolayers", Mater. Res. Express, 2, (2015), 075601.
11. **Suman Chowdhury**, Debnarayan Jana, "A theoretical review on electronic, magnetic and optical properties of silicene", Rep. Prog. Phys., 79, (2016), 126501 (57pp).
12. Arka Bandyopadhyay, Parthasarathi Pal, **Suman Chowdhury**, Debnarayan Jana, "First principles Raman study of boron and nitrogen doped planar T-graphene clusters", Mater. Res. Express, 2, (2015), 095603.
13. **Suman Chowdhury**, Debnarayan Jana, "Electronic and magnetic properties of modified silicene/graphene hybrid: Ab initio study", Mat. Chem. Phys., 183, (2016), 580.
14. **Suman Chowdhury**, Arka Bandyopadhyay, Namrata Dhar, Debnarayan Jana, "Optical and magnetic Properties of Free Standing Silicene, Germanene and T-graphene System: A first principles Study", chapter-2, pp 23-70, De Gruyter, Edited by Ponnadurai Ramasami, ISBN-9783110467215 (2017).
15. **Suman Chowdhury**, Arnab Majumdar, Debnarayan Jana, "Search for magnetism in transition metal atoms doped tetragonal graphene : a DFT approach", Journal of Magnetism and Magnetic Materials, 441, (2017) 523.
16. **Suman Chowdhury**, Debnarayan Jana, "Optical properties of monolayer BeC under an external electric field : A DFT approach", Volume 3, Issue 9, Chapter-1, pp-1-8 (2018), Physical Sciences Reviews, De Gruyter, Edited by Ponnadurai Ramasami, ISBN-9783110566758 (2018).
17. Pradipta Kumar Mandal, **Suman Chowdhury**, Supriya Das, Mili Das, "Physics in Laboratory including python Programming & Mechanics Practical", Chapter-1-17, pp 1-192, Santra Publication, ISBN-9789386911315 (2018).
18. Arnab Majumdar, **Suman Chowdhury**, Debnarayan Jana, "Electronic and Optical Properties of the Supercell of 8- Pmmn Borophene Modified on Doping by H, Li, Be and C: A DFT Approach", Appl. Phys. A, 125, (2019) 360.
19. Tista Mukherjee, **Suman Chowdhury**, Debnarayan Jana, L. C. Lew Yan Voon, "Strain induced electronic and magnetic properties of 2D magnet CrI₃: a DFT approach", J. Phys.: Condens. Matter, 31 (2019) 335802.
20. Pradipta Kumar Mandal, **Suman Chowdhury**, Supriya Das, Mili Das, "Physics in Laboratory including python Programming, Thermal Physics & Digital Electronics", pp 1-490, Santra Publication (2019).
21. Arnab Majumdar, Xiaoyong Yang, Wei Luo, **Suman Chowdhury**, Sudip Chakraborty, Rajeev Ahuja, "High exothermic dissociation in van der Waals like hexagonal two dimensional nitrogen from first-principles molecular dynamics", Applied Surface Science, (accepted, in press) (2020) doi : 10.1016/j.apsusc.2020.146552.

Teaching Experience

- M. Sc. Sem-I tutorial
(Employer-University of Calcutta) Quantum Mechanics 2013-2015
- M. Sc Sem-IV
(Employer-Narendrapur Ramakrishna Mission) Density Functional Theory 2017 - 2018
- M. Sc Sem-IV
(Employer-Midnapore College) Advanced Quantum Mechanics 2017
- B. Sc 1st Year (Honours)
(Employer-Bangabasi College) Waves and Oscillations,
Geometrical Optics 2017
- B. Sc 2nd Year (Honours)
(Employer-Bangabasi College) Physical Optics 2017
- B. Sc 3rd Year (Honours)
Employer-Bangabasi College) Electromagnetic Theory 2017
- B. Sc 3rd Year (General)
Employer-Bangabasi College) Practical Computational Physics 2017
- B. Sc 2nd Year (General)
Employer-Bangabasi College) Practical Physics 2017
- B. Sc 1st Year (General)
(Employer-Bangabasi College) Waves and Oscillations 2017
- B. Sc Sem-I (Honours)
(Employer-Bangabasi College) Practical Computational Physics 2018
- B. Sc Sem-I (General)
(Employer-Bangabasi College) Classical Mechanics 2018

- B. Sc Sem-II (Honours) Waves & Optics 2019
(Employer-Bangabasi College)
- B.Sc Sem-II (General) Practical Physics 2019
(Employer-Bangabasi College)
- B. Sc 3rd Year (General) Practical Computational Physics 2018-2019
Employer-Bangabasi College)
- M. Sc Sem-IV Density Functional Theory 2018 - 2019
(Employer-Narendrapur Ramakrishna Mission)
- B. Sc Sem-I (Honours) Practical Computational Physics 2019
(Employer-Bangabasi College)
- B. Sc Sem-I (General) Classical Mechanics 2019
(Employer-Bangabasi College)
- B. Sc Sem-I (General) Practical Classical Mechanics 2019
(Employer-Bangabasi College)
- B. Sc Sem-III (Honours) Practical Computational Physics 2019
(Employer-Bangabasi College)
- B. Sc 3rd Year (General) Practical Computational Physics 2019-2020
(Employer-Bangabasi College)

PERSONAL DETAILS :

Name : DR. SUMAN CHOWDHURY

Gender : Male

Date of birth : 23-09-1988

Marital status : Single

Nationality : Indian

Father's Name : Sri. Tamal Chowdhury

Linguistic Ability : English, Hindi, Bengali

Present Address : 33B Creek Lane, Kolkata – 700014, West-Bengal, India

Permanent Address : 33B Creek Lane, Kolkata – 700014, West-Bengal, India

Personal Strength : Leadership skills, Self-confidence, Optimism and Hard working

Present Status :

Research Scientist at Skolkovo Institute of Science and Technology, Moscow, Russia

Declaration : I hereby declare that all the details furnish above are true to the best of my knowledge and belief.

Place : Kolkata

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