Amal Kishore

Work : Indian Institute of Science, Bengaluru, India

Email: amalk4905@gmail.com **Phone:** (+91) 8287599183

GitHub: https://github.com/amal-kishore

Google Scholar: https://scholar.google.com/citations?hl=en&user=zPZ7AGsAAAAJ

Gender: Male **Date of birth:** 11/01/1996 **Nationality:** Indian

ABOUT MYSELF

I am a postdoctoral researcher at the Indian Institute of Science (IISc), Bangalore, with a strong background in computational physics. My research primarily focuses on the theoretical modeling of two-dimensional semiconductors for applications in photocatalytic water splitting and excitonic solar cells, employing methods such as DFT, DFPT, and GW+BSE. Currently, I am expanding my expertise in scientific code development.

EDUCATION AND TRAINING

[02/12/2024 – Current] **Post-doctoral training**

Indian Institute of Science (IISc), Bengaluru https://iisc.ac.in/

City: Bengaluru | **Country:** India |

[01/2020 – 02/2025] **Ph.D.**

Institute of Nano Science and Technology, Mohali https://inst.ac.in/

City: Mohali | **Country:** India |

[09/2019 – 12/2019] **Project Fellow**

Institute of Nano Science and Technology, Mohali https://inst.ac.in/

[01/2019 – 06/2019] **Guest Lecturer**

Doranda College, Ranchi University

[07/2016 – 07/2018] **M.Sc. in Physics**

National Institute of Technology, Durgapur https://nitdgp.ac.in/

City: Durgapur | **Country:** India | **Field(s) of study:** Physics | **Final grade:** CGPA 7.98 | **Thesis:** Synthesis and Characterization of ZrO2 Nanoparticles

[08/2013 – 06/2016] **B.Sc. in Physics**

University of Delhi, Delhi https://www.du.ac.in/

City: Delhi | **Country:** India | **Field(s) of study:** Physics | **Final grade:** 71%

[04/2011 – 03/2013] **All India Senior School Certificate Examination (AISSCE)**

Sri Ramakrishna Sarada Math & Mission (Vivekananda Central School) Hazaribagh https://saradaashramavcs.org/

City: Hazaribagh | **Country:** India | **Field(s) of study:** Physics, Chemistry, Mathematics, English, Economics | **Final grade:** 83.4%

PUBLICATIONS

[2025] **Spatial Control of Interlayer Excitons in 2D Metal Tellurohalides for Efficient Excitonic Solar Cells: Probing Excited States under External Perturbations**

Reference: Kishore, A.; Seksaria, H.; De Sarkar, A. J. Phys. Chem. C 2025, 129, 9, 4589–4596

[2025] **Physical Origin and Control of Exciton Spatial Localization in High-κ MOene Monolayers Under External Perturbations**

Reference: J. Phys.: Condens. Matter 37 115703

Amal Kishore, Harshita Seksaria and Abir De Sarkar

[2024] **Dielectric Screening and Magnetic Force Modulated Spontaneous Exciton Dissociation for Enhanced Photocatalytic Water Splitting: Insights into Exciton Excited States**

Kishore, A.; Seksaria, H.; De Sarkar, A. ***The Journal of Physical Chemistry C*** 2024, *128* (24), 10225–10234.

[2023] **Regulating Excitonic Effects in Non-Oxide Based XPSe3 (X = Cd, Zn) Monolayers towards Enhanced Photocatalysis for Overall Water Splitting**

Kishore, A.; Seksaria, H.; Arora, A.; De Sarkar, A. ***Physical Chemistry Chemical Physics*** 2023, *25* (30), 20337–20349.

[2023] **Unconventional Anisotropy in Excitonic Properties and Carrier Mobility in Iodine-Based XTeI (X = Ga, In) Monolayers for Visible-Light Photocatalytic Water Splitting**

Kishore, A.; Tripathy, N.; De Sarkar, A. ***The Journal of Physical Chemistry C*** 2023, *127* (4), 1992–2002.

[2024] **Probing 2D Exciton Dynamics of Non-Hydrogenic Anisotropic Rydberg Spectra in Anomalous Screening Regime**

Seksaria, H.; **Kishore, A.**; De Sarkar, A. ***The Journal of Physical Chemistry C*** 2024, *128* (15), 6487–6495

[2024] **Temperature-Driven Journey of Dark Excitons to Efficient Photocatalytic Water Splitting in β-AsP**

Seksaria, H.; **Kishore, A.**; De Sarkar, A. **Physical Chemistry Chemical Physics** (2024).

[2021] **Spin-Current Modulation in Hexagonal Buckled ZnTe and CdTe Monolayers for Self-Powered Flexible-Piezo-Spintronic Devices**

Mohanta, M. K.; IS, F.; **Kishore, A.**; De Sarkar, A. . **ACS Appl Mater Interfaces** 2021, 13 (34), 40872–40879.

[2020] **Two-Dimensional Ultrathin van Der Waals Heterostructures of Indium Selenide and Boron Monophosphide for Superfast Nanoelectronics, Excitonic Solar Cells, and Digital Data Storage Devices**

Mohanta, M. K.; **Kishore, A.**; De Sarkar, A. **Nanotechnology** 2020, 31 (49), 495208.

[2025] **Room Temperature Bolometric Response in Nitro-Boosted rGO**

Reference: Saini, J.; Raturi, M.; Kaur, M.; Neeshu, K.; Maharana, A. K.; Dash, T.; Kishore, A.; Tyagi, H.; Rani, R.; Kundu, A.; De Sarkar, A.; HazraLangmuir 2025, 41, 8, 5634–5646

CONFERENCES & SEMINARS

[06/2023] **Oral Presentation (Invited Talk): 2nd Bilateral Meet on Innovations in Materials for Energy and Environmental Technologies (i-MEET)**

[04/2024] **Oral Presentation: International Conference on Catalysis for Clean Energy Technologies and Sustainable Development**

[05/2023] **Poster Presentation: Research Scholar Day, INST (Best Poster Award)**

[12/2023] **Poster Presentation: International conference of 34th Annual General Meeting of MRSI at IIT (BHU), Varanasi**

[10/2024] **Poster Presentation: International Workshop on Materials and Devices for Post-CMOS Computing, co-organized by the University of Cambridge and INST Mohali**

RECOMMENDATIONS

Name: Prof. Abir De Sarkar

Scientist 'G' (Senior Professor H)

Editorial Advisory Board member, *Journal of Physical Chemistry* A, B, C

Editorial Board member (Applied Physics), Association of Asia Pacific Physical Society (*AAPPS*) Bulletin

Former Dean (Academics) & Dean (Faculty)

Institute of Nano Science & Technology Sector-81, Knowledge City, Sahibzada Ajit Singh Nagar, Punjab, India, Pin - 140306

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Personal webpage

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E-mail: abir@inst.ac.in

Name: Dr. Ramendra Sundar Dey

Scientist 'D' (Associate Professor)

INSA Associate Fellow, Associates IASc, Member INSA-INYAS

Guest Editor,

Discover Chemical Engineering, Springer Nature

Catalysis Today, Elsevier

Email: rsdey@inst.ac.in

URL: Official homepage

Personal webpage

Google scholar

E-mail: rsdey@inst.ac.in

Name: Dr. Kiran Shankar Hazra

Scientist 'E' (Associate Professor)

Email: kiran@inst.ac.in

URL: Official homepage

Google scholar

E-mail: kiran@inst.ac.in

HONOURS AND AWARDS

[04/2019] **National Eligibility Test (NET)**

Qualified National Eligibility Test (NET), Lectureship with rank 100

[03/2018] **Graduate Aptitude Test in Engineering (GATE)**

Qualified Graduate Aptitude Test in Engineering (GATE) in Physics (PH)

[03/2016] **Joint Admission Test (JAM) for M.Sc.**

Qualified Joint Admission Test for M.Sc. 2016 conducted by IIT Madras, 2016

TECHNICAL SKILLS

Programming, Electronic Structure Codes, HPC

Python

(https://github.com/amal-kishore)

Data Analysis and Numerical Methods: Pandas, Numpy, Scipy, Matplotlib

PDE, Finite-difference technique

DFT and MBPT simulation codes

VASP, Quantum Espresso, YAMBO, BerkeleyGW,

Skilled in compiling and installing codes on HPC systems

Machine Learning (Scikit-learn)

MANAGEMENT AND LEADERSHIP SKILLS

Team lead

Role: Core Organizing Team

Event: CRYSTAL Workshop – DFT Modelling in Nanoscience

Details: In-person workshop with hands-on training, Feb 12–16, 2023, organized by INST Mohali in collaboration with the University of Torino (Italy) and Michigan Tech (USA). Responsibilities: Communication, publicity (flyers, schedules), technical support, registration, logistics (transport, food, lodging), and excursion coordination.

Project Management and Team Lead

FALAK Educational Outreach Program – INST Mohali

Initiative to promote scientific temper among underprivileged children.

Role: Core contributor (Nov 2022–Nov 2023); involved in conceptualization, team formation, community engagement, curriculum development, and weekly session coordination. Recognition: Certificate of Appreciation awarded by Director, INST for outstanding contribution.

Volunteer

Role: Volunteer for technical responsibilities

International Workshop on "Materials and Devices for Post-CMOS Computing," co-organized by the University of Cambridge and INST Mohali on 21st - 22nd October 2024