

KUMARESH HALDER, Ph.D.

AICTE Faculty ID: 1-11321569481

247/167/2, P. N. Mukherjee Road, Khardah, Kolkata 700 116, India

(+91) 9674532751 | h.kumaresh89@gmail.com

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SUMMARY

Ph.D. in Physics from Jadavpur University with 8 years of teaching and 8 years of concurrent independent research experience. Authored 14 peer-reviewed journal publications and 3 book chapters, with an h-index of 10, i10-index of 5, and 121 citations till date. Research interests include ceramic and polymeric composite materials, biomaterials, nanomaterials, carbon and carbon-reinforced materials, and emerging 2D materials. Adept at interdisciplinary collaboration, experimental characterization, and academic mentoring in both undergraduate and postgraduate domains.

EDUCATION

DOCTOR OF PHILOSOPHY (PH. D.)

December, 2016

JADAVPUR UNIVERSITY

Department of Physics, SGPA: **10/10**

Advisor: Dr. Sukhen Das, **Co-advisor:** Dr. Alakananda Bhattacharya

Thesis Title: *Development and Characterization of Transition Metal Doped Aluminosilicate and Their Polymeric Nano Composites: Study of Their Electrical Properties and Possible Applications.*

Relevant Course Works: Production of low temps. and low temp. properties of materials, Biophysics.

MASTER OF SCIENCE (M. SC.)

August, 2012

WEST BENGAL STATE UNIVERSITY

Department of Electronics, CGPA: **4.68/5**

Advisor: Dr. Arijit Roy

Thesis Title: "Development of Digital Opismeter for Curvy Length Measurement."

BACHELOR OF SCIENCE (B. SC.)

July, 2010

UNIVERSITY OF CALCUTTA

Department of Electronics, CGPA: **5.65/10**

Major: Electronics (Honors), Minor: Computer Science, Mathematics.

HIGHER SECONDARY EXAMINATION (H.S.)

May, 2007

WEST BENGAL COUNCIL OF HIGHER SECONDARY EDUCATION

Percentage: **66.40%**

Subjects: Language: Bengali (A), English (B), Compulsory Elective: Chemistry, Mathematics, Physics, Optional Elective: Biological Sciences.

SECONDARY EXAMINATION

May, 2005

WEST BENGAL BOARD OF SECONDARY EDUCATION

Percentage: **74.25%**

Subjects: Language Group: Bengali (FL), English (SL), Science Group: Mathematics, Physical Science, Life Science, India & Her People Group: History, Geography.

ACADEMIC APPOINTMENTS

Assistant Professor

January 2021- Present

Department of Basic Science and Humanities (BSH), Regent Education and Research Foundation Group of Institutions (RERFGI), Barrackpore, India

Guest Teacher

September 2021- April 2022

Department of Electronics (Undergraduate Section), Ramakrishna Mission Vivekananda Centenary College, Rahara, India

Guest Lecturer

August 2017- June 2022

Department of Electronics (Postgraduate Section), West Bengal State University, Barasat, India

PUBLICATIONS

1. Roy, D., **Halder, K.**, Paul, B. K., Bhattacharya, A., Das, S., & Nandy, P. (2013). *Reduced activation energy of iron and copper ion doped mullite which can be used as a substrate in electronic industry*. **Journal of Surface Engineered Materials and Advanced Technology**, 3(1), 11–17. <https://doi.org/10.4236/jsemt.2013.33A003>
2. Roy, D., **Halder, K.**, Paul, B. K., Bagchi, B., Bhattacharya, A., Das, S., & Nandy, P. (2013). *Study of densification of sol–gel derived mullite due to excess iron, nickel and copper ions*. **Ceramics – Silikáty**, 57(3), 219–224.
3. Paul, B. K., **Halder, K.**, Roy, D., Bagchi, B., Bhattacharya, A., & Das, S. (2014). *Abrupt change of dielectric properties in mullite due to titanium and strontium incorporation by sol–gel method*. **Journal of Advanced Ceramics**, 3(4), 278–286. <https://doi.org/10.1007/s40145-014-0119-8>
4. Paul, B. K., **Halder, K.**, Roy, D., Bagchi, B., Bhattacharya, A., & Das, S. (2014). *Dielectric switching above a critical frequency occurred in iron mullite composites used as an electronic substrate*. **Journal of Materials Science: Materials in Electronics**, 25(12), 5218–5225. <https://doi.org/10.1007/s10854-014-2291-6>
5. **Halder, K.**, Paul, B. K., Bagchi, B., Bhattacharya, A., & Das, S. (2014). *Copper ion doped mullite composite in poly(vinylidene fluoride) matrix: Effect on microstructure, phase behavior and electrical properties*. **Journal of Research Updates in Polymer Science**, 3(3), 157–169. <https://doi.org/10.6000/1929-5995.2014.03.03.3>
6. **Halder, K.**, Paul, B. K., Roy, D., Bhattacharya, A., & Das, S. (2015). *High-K tungsten–mullite composite for electronic industrial application: Synthesis and study of its microstructure, phase behavior and electrical properties*. **Journal of Materials Science: Materials in Electronics**, 26(2), 1172–1180. <https://doi.org/10.1007/s10854-014-2521-y>
7. Ganguly, S., **Halder, K.**, Haque, N. A., Das, S., & Dastidar, S. G. (2015). *A comparative study between electrical properties of bulk and synthesized nanomaterial of zinc sulphide*. **American Journal of Research Communication**, 3(3).
8. **Halder, K.**, Roy, D., & Das, S. (2015). *A comparative electrical study of nano-crystalline mullite with low dielectric loss due to incorporation of tungsten and molybdenum ion: Their uses in electronic industries*. **Journal of Materials Science: Materials in Electronics**, 26(8), 5803–5811. <https://doi.org/10.1007/s10854-015-3139-4>
9. **Halder, K.**, Paul, B. K., Bhattacharya, A., & Das, S. (2016). *Influence of nickel ion doped mullite composite on electrical properties, phase behavior and microstructure of poly(vinylidene fluoride) matrix*. **Journal of Polymer Research**, 23, 133. <https://doi.org/10.1007/s10965-016-1027-0>
10. Mandal, D., Chattopadhyay, H., Karmakar, A., & **Halder, K.** (2018). *Finite element approach towards impact analysis on biomechanical nature of cornea*. **Biomedical Research**, 29(12), 2465–2470. <https://doi.org/10.4066/biomedicalresearch.29-16-1650>
11. Mandal, D., Bag, S., Sikdar, S., & **Halder, K.** (2023). *Extraction and characterization of acid soluble collagen type I from Sperata aor*. **Journal of Emerging Technologies and Innovative Research (JETIR)**, 10(1), 136–140. ISSN 2349–5162.

12. Mandal, D., Chattopadhyay, H., & **Halder, K.** (2023). *Constitutive modelling of human cornea through fractional calculus approach*. **Physics of Fluids**, 35(3), 031907. <https://doi.org/10.1063/5.0138730>
13. Mandal, D., Chattopadhyay, H., & **Halder, K.** (2023). *Development of silica–collagen hybrid as corneal substitute through sol–gel route*. **BioNanoScience**, 13(8), 2441–2447. <https://doi.org/10.1007/s12668-023-01146-6>
14. Bag, S., **Halder, K.**, & Mandal, D. (2025). *Nanomaterials in medical imaging: Breakthroughs, challenges, and prospects*. **Trends in Biomaterials and Artificial Organs** (Accepted, 11 October 2025).

BOOK/BOOK CHAPTER PUBLICATIONS

1. **Halder, K.**, Mandal, D., Ganguly, K., Sikdar, S., & Bag, S. (2022). *The effects of metal ion doped ceramic fillers into poly(vinylidene fluoride) matrix: A comparative investigation and its application in micro-electronics industry*. In *Applications of Networks, Sensors and Autonomous Systems Analytics* (pp. 309–324). Studies in Autonomic, Data-Driven and Industrial Computing. **Springer**. https://doi.org/10.1007/978-981-16-7305-4_31
2. **Halder, K.**, Mandal, D., Mallick, A., Das, S., & Roy, A. (2025). *Electrochemical study of graphitic oxide and reduced graphene oxide emphasizing on their defect densities*. In *Trends in Materials Science & Mechanical Engineering* (pp. 63–74). **OrangeBooks Publication**. ISBN 978-93-65549-59-1.
3. Mandal, D., Bag, S., & **Halder, K.** (2025). *TeleHealthcare and its Advancement*. In *Artificial Intelligence in e-Health Framework: Telemedicine Applications, Drug Delivery, Augmented Reality, and Robotics* (Vol. 2). **Elsevier**. ISBN 978044314061.

CONFERENCE PROCEEDINGS

- **1st International Workshop on Nanomaterials (IWON): Engineering Photon and Phonon Transport**, organized by *Jadavpur University*, Kolkata, India. 14-15 December, 2012
- **International Conference on Applications of Networks, Sensors and Autonomous System Analytics (ICANSASA 2020)**, organized by *JIS College of Engineering*, Kalyani, India. 11-12 December, 2020
- **International Conference on Materials Science and Mechanical Engineering (ISMSME 2023)**, organized by *Regent Education and Research Foundation*, Kolkata, India 19-20 January, 2023

WORKSHOP, SEMINAR, FDP & STTP PARTICIPATION

- **National Seminar on Computing with Quantum Mechanics**, organized by *Department of Electronics, West Bengal State University*, Kolkata, India. 15 February, 2016
- **One-Day UGC-CPE Funded Faculty Enrichment Workshop**, organized by *Internal Quality Assurance Cell (IQAC) and Department of Electronic Science, Barrackpore Rastraguru Surendranath College*, Kolkata, India. 22 February, 2019
- **International Seminar on Reliability: Electronic Components to Systems**, organized by *Department of Electronics, West Bengal State University*, Kolkata, India. 24 April, 2019
- **AICTE Sponsored Short-Term Training Programme (STTP) on Advanced Technology to Bridge the Gap between Medical Science and Engineering for the Benefit of Mankind**, organized by *Department of Biomedical Engineering, JIS College of Engineering*, Kalyani, India. 23-28 August, 2021
- **Computer Society of India (CSI) Sponsored Faculty Development Programme (FDP) on The Future of Generative AI in Academic Research and Publishing**, organized by *Department of Computer Application & Science, Institute of Engineering & Management*, Kolkata, India. 2-6 January 2024
- **IEEE Photonics Society Sponsored FDP on Present Scenario of Lighting Sector: Industry 4.0**, organized by *Department of Electrical Engineering*, 26 January - 01 February, 2024

Gargi Memorial Institute of Technology, Baruipur, Kolkata, India.

- **AICTE Sponsored FDP (Offline)** under the ATAL Academy Scheme on Nano Technology, Materials & Science, organized by Department of Mechanical Engineering and School of Materials Science & Nanotechnology, Jadavpur University, Kolkata, India. **19-24 February, 2024**
- **NPTEL–AICTE FDP** (12-week course followed by proctored exam) funded by Ministry of Education (MoE), Government of India on Carbon Materials and Manufacturing with a consolidated score of **58%**. **January- April 2024**
- **AICTE Sponsored FDP (Online)** under the ATAL Academy Scheme on Future Tech Revealed: Semiconductors, Quantum Computing, and Data Storage Insights, organized by COEP Technological University, Maharashtra, India. **20-25 January, 2025**
- **AICTE Sponsored FDP (Online)** under the ATAL Academy Scheme on Semiconductor, organized by ABACUS Institute of Engineering and Management, West Bengal, India. **27 January– 1 February 2025**
- **AICTE Sponsored FDP (Online)** under the ATAL Academy Scheme on Semiconductor, organized by Sri Eshwar College of Engineering, Tamil Nadu, India. **17- 22 February, 2025**
- **AICTE Sponsored FDP (Offline)** under the ATAL Academy Scheme on Next-Generation Semiconductor Sensing: Integrating Nanotechnology and Materials, organized by Meghnad Saha Institute of Technology, Kolkata, India. **18- 23 August, 2025**
- **AICTE Sponsored FDP (Online)** under the ATAL Academy Scheme on Green Horizon: Interdisciplinary Approaches to Emerging Renewable Energy Technologies and Climate Sustainability, organized by Regent Education & Research Foundation Group of Institutions, Kolkata, India. **15-20 September, 2025**
- **AICTE Sponsored FDP (Online)** under the ATAL Academy Scheme on Next-Gen Electronics and Communication Systems: Empowered by ML and AI, organized by National Institute of Technology Kurukshetra, Haryana, India. **06-11 October, 2025**

JOURNAL REVIEW AND EDITORIAL SERVICE

- Journal of Surface Engineered Materials and Advanced Technology, Scientific Research Publishing
- Helion, Cell Press Publishing.

MEMBERSHIP OF LEARNED SOCIETIE(S)

Life Member, Society for Materials Chemistry (SMC), BARC

Life Member, Biomedical Engineering Society of India (BMESI)

SKILLS

Simulation and Analytical Software:

PSpice, OriginPro, GNU 8085 Simulator, MATLAB, GNU Octave, FullProf, LAMMPS

Characterization Units and Instruments Operated:

X-ray Powder Diffractometer of D8, Bruker AXS, Wis-consin, USA

FTIR spectroscopy (FTIR-8400S, Shima-dzu)

LCR meter (HP Model 4274 A, Hewlett-Packard, USA)

DTA-TGA (DTG- 60H, Shimadzu (Asia Pacific) pvt. Ltd., Singapore).

Languages: Bengali (Native), Hindi (National) and English (Working Proficiency).

ACADEMIC HONORS AND AWARD

- **UGC Basic Scientific Research (BSR) Fellowship in Science.** June 2014- June, 2016
University Grant Commission (UGC) India
- **Bronze Medal** September, 2010
Bhairab Ganguly College, affiliated to the University of Calcutta
Granted for securing 2nd position in the Department of Electronics.

REFERENCES

Prof. (Dr.) Himadri Chattopadhyay

Professor, Department of Mechanical Engineering
Jadavpur University, Kolkata: 700 032, India.

☎ (+91) 7003151300

✉ himadri.chattopadhyay@jadavpuruniversity.in

Prof. (Dr.) Sukhen Das

Professor, Department of Physics
Jadavpur University, Kolkata: 700 032, India.

☎ (+91) 9433091337

✉ sukhen.das@jadavpuruniversity.in

(Dr.) Madhabi Ganguly (Ray)

Asst. Professor, Department of Electronics
West Bengal State University, Kolkata: 700 126, India

☎ (+91) 9433847849

✉ ray_madhabi@yahoo.co.in

DECLARATION

I hereby declare that the information furnished above is true to the best of my knowledge and belief.

Date: 12-10-2025

Signature:

Place: Khardah

Kumaresb Halder