

CURRICULUM VITAE

SIBASHISH CHAKRABORTY

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EDUCATIONAL QUALIFICATIONS

2021-	Ph.D (Interdisciplinary areas in Science and Engineering)	
2019-2021	M.Tech (Applied Optics) Indian Institute of Technology, Delhi	CGPA 8.60
2015-2017	M.Sc (Applied Physics) Malaviya National Institute of Technology, Jaipur	CGPA 7.26
2011-2014	B.Sc (Physics Major) Srikishan Sarda College, Hailakandi, Assam	CGPA 7.59
2009-2011	Higher Secondary (Science) Srikishan Sarda College, Hailakandi, Assam	76.00 %
2009	Matriculation Adarsha Vidya Niketan, Hailakandi, Assam	81.00 %

RESEARCH AREAS

Optics, Spectroscopy, Nano-plasmonics, Light-matter interaction, Surface Enhanced Raman Scattering (SERS).

COMPUTER SKILLS

- Computer Applications: Basic Knowledge
- Numerical FDTD, Matlab software

WORK EXPERIENCE

- Junior Research Fellow (August 2021 – August 2023) at Indian Institute of Technology Delhi, New Delhi
- Senior Research Fellow (August 2023 –) at Indian Institute of Technology Delhi, New Delhi

PUBLICATIONS

Journal Publications:

- **Sibashish Chakraborty**, Vimarsh Awasthi, Richa Goel, & Satish Kumar Dubey, “Numerical design of SERS-active substrate for analyte detection using gold-hexagonal patterns”, *Vibrational Spectroscopy*, **2021**, 117, 103312. (<https://doi.org/10.1016/j.vibspec.2021.103312>).
- **Sibashish Chakraborty**, Richa Goel, Vimarsh Awasthi & Satish Kumar Dubey “Numerical investigation of gold nano-polygonal structures as SERS-active substrates using near and far-sided excitation”, *Vibrational Spectroscopy*, **2023**, 124, 103497 (<https://doi.org/10.1016/j.vibspec.2023.103497>).

- R. Goel, **S. Chakraborty**, V. Awasthi, V. Bhardwaj and S. K. Dubey, “Exploring the various aspects of Surface enhanced Raman spectroscopy (SERS) with focus on the recent progress: SERS-active substrate, SERS-instrumentation, SERS-application”, *Sensors and Actuators A: Physical*, **2024**, 376, 115555 (<https://doi.org/10.1016/j.sna.2024.115555>).
- **Sibashish Chakraborty**, Vimarsh Awasthi, Richa Goel, & Satish Kumar Dubey, “Label free, rapid detection of thiram in fruits and vegetables at trace levels using chemically synthesized SERS-active substrate”, *Optical Materials*, **2024**, 154, 115647 (<https://doi.org/10.1016/j.optmat.2024.115647>).
- **Sibashish Chakraborty**, Rishabh Vij, Richa Goel, Bhanu Pratap Singh, Kunaal Dhingra, Venu Gopal Achanta, Satish Kumar Dubey “PIQC based highly sensitive and reproducible novel SERS active substrate for biomolecule detection with high specificity” *Scientific Reports*, 14, **2024**, 29186 (<https://doi.org/10.1038/s41598-024-74528-9>).

Conference Publications:

- **S. Chakraborty**, V. Awasthi, R. Goel, & S. K. Dubey, “Chemical Synthesis and Application of Silver Decorated Reduced Graphene as an Economically Viable Surface Enhanced Raman Scattering Based Substrate for Detection of Analytes in Trace Quantities” (**Conference paper: presented in IEEE Digital Xplore, 6th IEEE International Conference on Emerging Electronics (ICEE), December 12-14, 2022, Bangalore, India**).
- **S. Chakraborty**, R. Goel, V. Awasthi, G. Jayaswal, S. K. Dubey, “Ultra-trace detection of biomarker employing Au-gratings as highly sensitive SERS -active-substrate” (**Conference paper : presented in SPIE Photonics conference, April 7- 11, Strasbourg, France, 2024**).

Conference Oral/Poster Presentations:

- **S. Chakraborty**, V. Awasthi, R. Goel, & S. K. Dubey, “Chemical Synthesis and Application of Silver Decorated Reduced Graphene as an Economically Viable Surface Enhanced Raman Scattering Based Substrate for Detection of Analytes in Trace Quantities” (**Conference paper: presented in IEEE Digital Xplore, 6th IEEE International Conference on Emerging Electronics (ICEE), December 12 – 14, 2022, Bangalore, India**).
- **S. Chakraborty**, R.Goel & S.K. Dubey, “Chemically synthesized Silver decorated nano-flower (Aloe Vera) as rapid, sensitive and cost-effective SERS-active substrate” (**Poster presentation in International Conference on Functional Materials (ICFM), January 9 – 12, IIT Kharagpur, India, 2024**).
- **S. Chakraborty**, V. Awasthi, R. Goel, & S. K. Dubey, “Detection of explosives in trace quantities employing silver nanoparticles decorated silica sol gel as surface enhanced Raman spectroscopy (SERS)-active sensor” (**Oral presentation in OPTCT+SeNcity conference, February 23 – 25, IIT Roorkee, India, 2024**).
- **S. Chakraborty**, R.Goel & S.K. Dubey, “Detection of LMG in fish fillet employing a cost-effective SERS-active substrate” (**Poster presentation in 8th IEEE Electron Devices Technology and Manufacturing Conference in (EDTM), March 3 – March 6, Bangalore, India, 2024**).
- **S. Chakraborty**, R. Goel, V. Awasthi, G. Jayaswal, S. K. Dubey, “Ultra-trace detection of biomarker employing Au-gratings as highly sensitive SERS -active-substrate” (**Conference paper : presented in SPIE Photonics conference, April 7 – 11, Strasbourg, France, 2024**).
- **S. Chakraborty**, & S. K. Dubey “ Surface enhanced Raman spectroscopy (SERS) based optical sensor for detection of urea in trace quantity” (**Oral presentation in OPTICA Sensing Congress conference, July 15 – 19, Toulouse, France, 2024**).

- Attended Global Bio India 2024 (September 12-14, 2024) at Pragati Maidan, New Delhi.
- **S. Chakraborty, & S. K. Dubey** “ Surface enhanced Raman spectroscopy (SERS) based plasmonic sensors for rapid fungicide and parasiticide detection” (**Poster presentation in Photonics 2024 at Indian Institute of Technology Kharagpur, India December 12 – 15, 2024**).

Workshop attended:

- Attended a two-day training program on "Dimensional Metrology and Application of Laser Interferometers" during **December 01-02, 2022**, in National Physics Laboratory (NPL), Delhi.

AWARDS AND HONOURS

- Research Excellence Travel Award (RETA) from IIT Delhi (March, 2024)
- Prime Minister’s Research Fellowship (PMRF) (Cycle 9, August 2022-July 2025)
- MHRD fellowship during M.Tech (2019-2021)
- GATE Physics -2020 (AIR: 619, Gate Score: 555)
- IIT JAM-2014 (AIR:1044)

TEACHING EXPERIENCES

- Gave private tuitions (online/offline mode) from class 9 to class 12 (Physics) during B.Sc & M.Sc.
- Performed teaching assistantship for Advanced Optical Laboratory-II in Department of Physics at Indian Institute of Technology Delhi (IITD), India [Time period: August, 2020-November, 2020].
- Performed teaching assistantship for Instrument Technology Laboratory-I(DSP703) for optics experiments at Indian Institute of Technology Delhi (IITD), India [Time period: August, 2022-November, 2022].
- Teaching (TA work activities include conduct of special lectures in workshops and training programs on his recent research activities) in Dept. of Physics, Miranda House, University of Delhi (DU) India, Period: 1st January, 2023-30th June, 2023.
- Teaching (TA work activities includes teaching of B.Tech students) in School of Physical Sciences (SPS), Jawaharlal Nehru University (JNU), India, Period: 1st August, 2023-30th November, 2023.
- Teaching (TA work activities includes teaching of M.Sc. students) in School of Physical Sciences (SPS), Jawaharlal Nehru University (JNU), India, Period: 1st February, 2024-April 2024.

PERSONAL DETAILS

Date of Birth : 10th June, 1993
Father’s Name : Subimal Chakraborty
Mother’s Name : Jayati Chakraborty
Gender : Male
Marital Status : Unmarried
Nationality : Indian
Languages Known : Bengali, English, Assamese, Hindi