

CURRICULUM VITAE

SUBHANKAR ROY

EDUCATION DETAILS

| Degree | Name of the University/Board | Subject | Percentage/CGPA |
|-------------------------|--|---|---|
| Ph.D. (2017-present) | VIT University, Vellore | Physics | |
| M.Sc. (2017) | VIT University, Vellore | Physics | 9.16 CGPA (outstanding student fellowship received for best academic performance) |
| B.Sc.(Hons.) (2015) | University of Calcutta | Physics | 54 % (Scored number 2 in my class) |
| CLASS XII (2012) | West Bengal Council of Higher Secondary Education | Physics, Chemistry, Mathematics, Biology | 86.40% (5 th rank in block) |
| CLASS X (2010) | West Bengal Board of Secondary Education | Science | 89.75% |

RESEARCH AREA

Quantum Optics, Nanophotonics, Single photon emitters, Optical nanostructures, Waveguide design, NV center in diamond

MASTER THESIS

Title of the project:

Phase estimation algorithms for magnetic resonance imaging techniques.

(Completed in May 2017)

PUBLICATIONS

- ❖ **Subhankar Roy**, and M. Ummal Momeen. "Low loss optical structure for directional and efficient photon emission using nitrogen-vacancy center in diamond." *Optik* 255 (2022): 168695.
- ❖ **Subhankar Roy**, Jianping Hu, and M. Ummal Momeen. "Novel e-SIL with embedded cone structure for the enhancement of photon collection efficiency from nitrogen–vacancy center in diamond." *Optics Communications* 481 (2021): 126532.
- ❖ **Subhankar Roy**, Jianping Hu, and M. Ummal Momeen. "Optimization of Pulse Sequences in MRI Scheme." *Journal of Physics: Conference Series*. Vol. 1000. No. 1. IOP Publishing, 2018.
- ❖ Jianping Hu, **Subhankar Roy**, and M. Ummal Momeen. "Study of multi-level atomic systems with the application of magnetic field." *Journal of Physics: Conference Series*. Vol. 1000. No. 1. IOP Publishing, 2018.
- ❖ **Subhankar Roy** and M. Ummal Momeen. A geometry dependent directivity analysis of an optical structure based on NV center in diamond." *Journal of Physics Communications* 8 (2024): 015003.
- ❖ Priyadarshini, V., A. Dharani, **Subhankar Roy**, Jianping Hu, and M. Ummal Momeen. "Enhanced photon extraction via cone structured waveguide from nitrogen vacancy center in diamond." *Results in Optics* 13 (2023): 100535.

PATENTS FILED

- ❖ Indian Patent
Application Number: 202341058802; (2023).
Title: Multi-layered optical filter for reduction of excitation light source noise from NV based optical structure.
- ❖ Indian Patent
Application Number: 202341070906; (2023).
Title: Ellipsoid solid immersion lens structure based Laguerre Gaussian beam illumination system for super resolution.
- ❖ Indian Patent
Application Number: 202441014518; (2024).
Title: System for generating an incident beam with improved resolution in sub-wavelength.

CONFERENCES ATTENDED

INTERNATIONAL Conferences

- ✓ *International: Presented paper in International Conference on Advances in materials Sciences and Technology, Oct-9, 2017, VIT-Vellore.*
- ✓ *Presented paper in International Conference on Advances in Mathematical Sciences, Dec-1, 2017, VIT-Vellore.*
- ✓ *Presented poster in International Conference on Nanoscience and Nanotechnology, Nov-29,2019, VIT-Vellore*
- ✓ *Participated in International Conference on Emerging Electronics (Virtual), Nov-26, 2020, IIT-Delhi.*
- ✓ *Participated in OSA High-brightness Sources and Light-driven Interactions Congress, Nov-16,2020*
- ✓ *Participated in INO ANNUAL SYMPOSIUM Nov-23, 2020.*
- ✓ *Presented poster in Topical Conference on Ultrafast Photonics and Quantum Science, Feb-15, 2024, PRL-Ahmedabad.*

NATIONAL Conferences

- ✓ *Presented paper in National Conference on Mathematical Techniques and its Applications, Jan-5, 2018, SRM University, Chennai.*

WORKSHOP

- ✓ *Attended workshop on Designing Antennas Using COMSOL Multiphysics, 2020.*

AWARDS AND FELLOWSHIPS

- Nominated for 73rd Lindau Nobel Laureate Meeting from India (2023).
- Indian Society of Atomic and Molecular Physics Student Cash Grant (2021).
- Received Research Award in 2018 from VIT University during Ph.D.
- Outstanding student fellowship received from VIT University for highest grade in master degree (in the years 2016 and 2017)
- Got scholarship from Department of Science and Technology, Govt. of India during undergraduate period (in 2013)
- Honored by West Bengal Police due to 5th rank holder in higher secondary Examination in the Block (2012).
- Honored by District Teachers Association due to rank holder in secondary examination in the District (2010).

TRAINING AND CERTIFICATIONS

- One month (May 2016) training on **SUMMER TRAINING PROGRAM IN PHYSICS** from University of Madras under the Indian Academy of Sciences, Chennai.

MEMBERSHIPS

- Indian Society of Atomic and Molecular Physics.
- SPIE Photonics Society.

Current position

- Working as a Junior Research Fellow under the DST-SERB funded project entitled as “manipulation of microwave transmission for nitrogen-vacancy center in diamond based devices”

Technical Skills

- Trained to design and handle the Fiber optics, Fabry-Perot interferometer, lasers, hardware interface with labview data acquisition systems and spectroscopic instruments in the lab.
- Microwave Antenna fabrication and testing.

Software Skills

COMSOL MULTIPHYSICS, Lumerical, Ansys-HFSS, Labview, Multisim, Origin and programming language C.

Student PROJECT DETAILS (during the academic years 2015-16; 2016-17)

Project 1: *Role of ground state population distribution in a three-level atomic system.*

Duration: 6 months

Team Size: single

Project 2: *Synthesis and characterization of pure and chromium substituted zinc ferrite nanoparticles by self-propagating solution combustion Method.*

Duration: 6 months

Team Size: three

Teaching Experience

Teaching assistant in VIT University between July 2017 and April 2020.

I have assisted the lab and theory courses of Engineering Physics, Modern Physics and Materials Science.

Personal Details

Date of birth: 24th July, 1995

Permanent address: Vill. + P.O. - Nandapur, Dist. - Purba Medinipur, West Bengal, Pin. No. - 721625.

Languages known: English, Hindi, Bengali

Gender: Male

Hobbies: Cycling and playing cricket

Provisional Grade History

Register No.
Name SUBHANKAR ROY

Program Research Program (6 Years) - Doctor of Philosophy

School SAS - School of Advanced Sciences

| Grade History | | | | | | | | |
|---------------|-------------|--|-------------|---------|-------|------------|--------------------|---------------|
| Sl.No | Course Code | Course Title | Course Type | Credits | Grade | Exam Month | Result Declared On | Course Option |
| 1 | RES7001 | RESEARCH METHODOLOGY | Theory | 0 | B | Jan-2018 | 21-Feb-2018 | NIL |
| 2 | RSS01518 | NITROGEN-VACANCY CENTER IN DIAMOND | Theory | 0 | S | Jan-2020 | 05-Feb-2020 | NIL |
| 3 | ONL00172 | MICROWAVE THEORY AND TECHNIQUES | Theory | 0 | C | Jul-2019 | 10-Aug-2019 | NIL |
| 4 | ECE5002 | Data Acquisition and Hardware Interfaces | TheoryLab | 4.0 | A | Nov-2018 | 11-Dec-2018 | NIL |

N1 : Student fails to clear one or more components of a course

N2 : Student who has been debarred due to lack of attendance

N3 : Student who has been absent in the Final Assessment Test

N4 : Student debarred in Final Assessment Test due to indiscipline/malpractice

| CGPA Details | | | | | | | | | | |
|--------------------|----------------|------|----------|----------|----------|----------|----------|----------|----------|----------|
| Credits Registered | Credits Earned | CGPA | S Grades | A Grades | B Grades | C Grades | D Grades | E Grades | F Grades | N Grades |
| 4.0 | 4.0 | 9.00 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 |

23.06.2024