

# Anwesha Panda

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## Education

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### PhD in Physical Sciences (Optics)

CGPA 8.71

Ongoing project: Spin-Orbit interaction in disordered anisotropic optical media

IISER Kolkata

August 2022 - Ongoing

### BS-MS degree in Physical Sciences

CGPA 8.47

MS-Thesis title: Interferometric weak measurement and its application in magneto-optics

IISER Kolkata

August 2014 - June 2019

## Research Experiences

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### Spin-Orbit interaction in disordered anisotropic optical media

with Prof. Nirmalya Ghosh

August 2022 - Ongoing

IISER Kolkata

In this study, we have investigated the role of the topological charge of input polarized vortex (OAM carrying) beams on the spin-orbit interaction of light in disordered optical media. Specifically, the influence of topological charge and spot size of circularly polarized Laguerre Gaussian and perfect vortex beams on the statistics of random spin split modes in spatially inhomogeneous disordered anisotropic media were investigated both experimentally and through theoretical simulations. The findings of this study have crystallized in the form of a manuscript, which is about to be submitted in arXiv.

### Interferometric weak measurement (MS Thesis)

with Prof. Nirmalya Ghosh

August 2018 - April 2019

IISER Kolkata

In this project, we have demonstrated a new concept of weak value amplification using polarization vector as a pointer. We have experimentally demonstrated this concept using a Mach-Zehnder interferometric arrangement and shown that weak value amplification of small optical activity can be manifested as the rotation of the Stokes vector in the Poincare sphere. This work has been published in **Scientific Reports** Journal. ([doi.org/10.1038/s41598-020-68126-8](https://doi.org/10.1038/s41598-020-68126-8))

## Publications and Preprints

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### Spin-Orbit interaction in disordered anisotropic optical media

Anwesha Panda, Sneha Dey, Yogishree Arabinda Panda, Aditya Anurag Dash, Alope Jana, Nirmalya Ghosh  
To be submitted in arXiv: Check "other relevant documents" section

### Natural weak value amplification in Fano resonance and giant Faraday rotation in magneto-plasmonic crystal ([doi.org/10.1038/s41598-020-68126-8](https://doi.org/10.1038/s41598-020-68126-8))

Shyamal Guchhait, Athira B S, Niladri Modak, Jeeban Kumar Nayak, Anwesha Panda, Mandira Pal, Nirmalya Ghosh  
Published in **Scientific Reports**: has 10 citations

## Skills

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### Programming Languages/Tools Experimental

Matlab, Mathematica, C, Python, learning COMSOL  
Various laser systems, Detector like CCD, photodiode, spectrometer, various other optical, optomechanical and optoelectronic components including spatial light modulator, liquid crystal variable retarders, Atomic Force Microscopy (AFM), learning Nano-fabrication by e-beam Lithography  
General GRE Score - 148 (Verbal), 166 (Quant)

### International level exam