

# Anuvab Nandi

Last Updated on 18th July 2023

☎ 8240714318 @ an20ip001@iiserkol.ac.in

## Education

### IISER KOLKATA

INTEGRATED PHD IN PHYSICS

📅 Since 2020 📍 Mohanpur, WB

CGPA : 9.17

### JADAVPUR UNIVERSITY

B.E. IN ELECTRONICS AND  
TELECOMMUNICATION

ENGINEERING

📅 2016-2020 📍 Jadavpur, WB

CGPA : 9.13

## Research Interests

Quantum mechanics • Quantum Foundations • Quantum Computing • Pulsed Electron Spin Resonance • NV Centers in Diamond • Coherent magnonics

## Skills

### PROGRAMMING AND SIMULATION

Python • JAVA • C/C++ • MATLAB • LabVIEW • CST Microwave Studio

### EXPERIMENTAL

Optical alignment • Photolithography • PCB Soldering • Microwave assembly

### MISCELLANEOUS

TEX • LINUX Bash • Microsoft Office • Git

## Academic Achievements

### WEST BENGAL JEE

RANK - 399

### JAM PHYSICS

RANK - 9

### CSIR UGC NET

RANK - 124

## Extracurricular Activities

Hobby robotics • Table tennis • Story books • Movies • Web Series

## Research Experience

### PULSED ELECTRON SPIN RESONANCE

IISER KOLKATA

📅 Since June 2019

📍 Mohanpur, WB

We have designed a pulsed electron spin resonance spectrometer setup for the coherent manipulation of paramagnetic spins. The setup can be thought of as an analog transmitter receiver system. The transmitter provides high power microwave pulses to the sample while the receiver detects the precession of the spins. Free induction decay and Rabi oscillations have been achieved with our setup. Novel microwave resonators which we have fabricated have shown substantial improvement in the signal. We are currently improving our setup in order to obtain the spin echo signal.

### NV CENTERS IN DIAMOND

IISER KOLKATA

📅 Since August 2021

📍 Mohanpur, WB

We have designed a widefield microscopy setup for the detection of continuous-wave and pulsed optically detected magnetic resonance (ODMR) of NV centers in diamonds. The NV electron spins are initialized to the ground state by optically pumping with a green laser. They are manipulated with the help of microwave pulses and finally readout by the red photoluminescence signal. We have obtained substantial improvement in the signal with the help of novel spoof plasmonic transmission lines. We are currently working on a confocal setup to detect and control individual NV centers.

### BOUNDARY OF THE SET OF QUANTUM CORRELATIONS FROM A FAMILY OF GAMES

INDIAN STATISTICAL INSTITUTE, KOLKATA

📅 August 2018-August 2020

📍 Kolkata, WB

We have used numerical optimization to find the quantum bound for arbitrary Bell functions. Using this technique, we have defined a set of supporting hyperplanes, which we conjecture to contain the entire set of quantum correlations. We have also generated a two-dimensional slice of the conjectured quantum boundary, and the latter has been shown to replicate the known features of the boundary

## Publications

### S-BAND ELECTRON SPIN RESONANCE SPECTROSCOPY USING A SHORT-CIRCUITED COPLANAR WAVEGUIDE RESONATOR

SUBHADIP ROY, ANUVAB NANDI, PRANOY DAS AND CHIRANJIB MITRA

📅 2020

📍 IOP SciNotes

The first two authors have contributed equally to this work.

### DETECTION OF ELECTRON SPIN RESONANCE DOWN TO 10 K USING LOCALIZED SPOOF SURFACE PLASMON

SUBHADIP ROY, ANUVAB NANDI, PRANOY DAS AND CHIRANJIB MITRA

📅 2021

📍 Journal of Physics D : Applied Physics