Aritra Mazumder

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OBJECTIVE   I am joining the graduate school at UC Boulder fall-2019. I completed my 5 year BS-MS Dual-degree program at the Indian Institute of Science Education and Research Kolkata in 2019 During my stay here at IISER I have taken a strong interest to the experimental aspects of condensed matter physics and behaviour of materials at extreme conditions of pressure and temperature. During my stay at IISER I was a part of the National Center for High Pressure Studies(NCHPS) as a BS-MS project student under Prof. Goutam Dev Mukherjee.

EDUCATION   Indian Institute of Science Education and Research Kolkata: Integrated BS-MS (2014-2019) Major: Physics;
Minor: Physics, Math and Earth Science
CGPA: 9.35
GRE Score: 329; TOEFL: 110; Subject GRE: 960;

SKILLS

- Programming languages known: Python, C, C++, Blue J, Scratch, HTML, LabVIEW, Arduino, COMSOL.
- Mathematics and graphing programs: Origin, Gnuplot, MATLAB.
- Soldering, Thin film preparation (sputtering), Working with low temperature systems.

ACADEMICS/ AWARDS

- Attended the KVPY National Science (VIJYOSHI) camp 2014.
- Attended the summer school on Crystallography, Minerology, Thermodynamics and Mantle Petrology (Summer 2016).
- Came 1st in Inquivesta 2017 events Botprix (RC cars) and Thrust (Water rocket competition).
- Attended GIAN program on High pressure studies using optical spectroscopy (Summer 2017).
- Attended VSRP-2018 conducted by TIFR, Mumbai.
- Came 1st in Junkyard wars(Machine building competition using scraps) Inquivesta 2019.

SCHOLARSHIP   Received the Innovation in Science Pursuit and Inspired Research Fellowship Grant (INSPIRE) from Department of Science and Technology, Govt. of India (August 2014-May 2019).

Research Experience

- Simulation of sand pile model and its analysis to verify Zipf's law, simulation of Conway's game of life and its application to biology, simulation of flocking pattern of birds in flight using python under the guidance of Prof. Rangeet Bhattacharya, Professor, IISER Kolkata. (software/program/language: python, origin, gnuplot)

- Helped design the experimental setup for four probe at high pressure and automation of data taking using LabVIEW and Keithley 2400 under the guidance of Prof. Goutam Dev Mukherjee, Professor, IISER Kolkata and Research Scholar Mr. Pinku Saha

- Worked on high pressure spectroscopy of topological insulators and dichroic crystals to study phase change using Raman spectrometer during Summer2017 under the guidance of Prof. Goutam Dev Mukherjee, Professor, IISER Kolkata.

- Studied of variation in pressure in DAC chamber with distance from center using Ruby as pressure calibrant during Summer-2017 under the guidance of Prof. Goutam Dev Mukherjee, Professor, IISER Kolkata and Research Scholar Pinku Saha

- Worked with thin film superconductors of NbN and studied the variation of critical temperature and transition with reduction in thickness, effect of substrate and growth parameters under the guidance of Prof. Pratap Raychaudhuri, Professor, TIFR Mumbai and Research Scholar Mr. Surajit Dutta, Summer 2018.

- MS Thesis: Development of Cryogenic Optical setup for low temperature Raman and PL Measurements. This project deals with the setup development, calibration using a known sample such as Sulfur and Silicon. Using this setup we have studied the low temperature Raman spectra of Rare Earth Oxide systems. This spectra has shown the expected anharmonic temperature evolution of Raman mode at high temperatures but we see deviation from expected behaviour arising from different phonon couplings below Curie Temperature. This work was done under the guidance of Prof. Goutam Dev Mukherjee.

- Working on computational simulation(COMSOL) to study high pressure thermal conductivity of Iron inside Diamond Anvil Cell (DAC).

For files related to the project click here.

REFERENCE   Prof. Goutam Dev Mukherjee, Professor. Dept. of Physical Sciences (DPS) IISER Kolkata, Email: goutamdev@iiserkol.ac.in