KAMALDEEP DALAL

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D.O.B. – July 3, 1998

Profile

I am an InnovaXN Ph.D. student at Institute Laue Langevin (ILL) and my Ph.D. is in collaboration with University of Copenhagen.

Education

Doctor of Philosophy (Ph.D.) in Physics **15th September – Present**
University of Copenhagen, Denmark

Master of Science (M.Sc.) in Physics **CGPA:** 8.79/10 **2020**
IIT Roorkee, Uttarakhand, India

Bachelor of Science (B.Sc. Hons.) in Physics **Percentage:** 79.86% **2018**
Panjab University, Chandigarh, India

Class 12th **Percentage:** 93.4% **2015**
Campus School, C.C.S.H.A.U., Hisar, Haryana, India

Research Experience

Doctor of Philosophy (Ph.D.) **15th September – Present**
ILL Supervisors: Dr. Nina Juliana Steinke, Dr. Thomas Saerbeck
Academic Supervisor: Prof. Kim Lefmann
Project Title: "Magnetic proximity in SE-SU-FMI epitaxial systems"

- Investigation of buried magnetic and structural interfaces using PNR
- Study involves observing and quantifying the extent of magnetic proximity in SE-SU-FMI epitaxial systems across hybrid interfaces
- Insight will result in fast & tremendous progress towards the zero-field topologically protected quantum bits

Junior Research Fellow (JRF) **8th December, 2020 – 31st March 2021**
Supervisor: Prof. Saroj Kumar Nayak (SBS, IIT Bhubaneswar , India)
Project Title: "Center of Excellence for Novel Energy Materials (CENEMA)"

- Preparation of electrodes based on Alumina and aluminum graphene hybrid composites
- Project involves synthesis techniques – Hydrothermal method
- Characterizations using- XRD, SEM, EDS, and electrochemical characterizations
- Investigation of their applications for Supercapacitor

Master's Dissertation **July 2019 – May 2020**
Thesis supervisor: Prof. Davinder Kaur (IIT Roorkee)

Thesis title: "Investigation of ferromagnetism on molybdenum disulfide (MoS_2) thin films for their applications in Spintronics**"**

- Study involve deposition of thin films by DC sputtering technique
- Introduction of ferromagnetism by phase incorporation method
- Structural characterizations done using – XRD, SEM, XPS, AFM, Raman spectroscopy
- Magnetic characterization done using – VSM
- Investigating its applications for magnetically tunable devices

Relevant Experience

Department Representative (DR) **Session 2017 - 2018**
Department of Physics, Panjab University, Chandigarh, India

- Communicating student issues to the authority
- Organization and management of cultural and sports events

Presented poster in 7th National Student Symposium on Physics **3rd – 5th October, 2019**
Organized by Indian Association of Physics Teachers.

Organized and Managed Workshop **5th June – 1st July 2017**
On Embedded System Designing based on Arduino Platform.

Presented poster in 5th National Student Symposium on Physics **10th-12th November, 2017**
Organized by Indian Association of Physics Teachers.

Attended workshop on Embedded Systems (Arduino Platform) **1st June - 4th July, 2016**
Organized by Netmax Technologies, Chandigarh.

Attended workshop on Learning Physics through Experiments **6th- 7th April, 2018**
Organized by IAPT RC-3 and Abdul Kalam Physics Society of
D.A.V. College, Chandigarh.

Attended 12th Chandigarh Science Congress (CHASCON) **12th-14th February, 2018**
Organized by Chandigarh Region Innovation and Knowledge
Cluster (CRIKC) and Panjab University, Chandigarh.

Active Member **July 2016 – May 2018**
Group: Panjab University Bicycle Lovers (PUBL)
Link: https://www.facebook.com/PromoteCycleSaveEarth/

Volunteer Work **July 2016 – July 2017**
Non-governmental Organization: Chhoti Si Asha (CSA)
Link: https://chhotisiasha.org/pages/badlaav/

- Help kids with their academics
- Facilitate them with communication and inter-personnel skills
- Mentor kids through mentorship initiative

Technical Expertise

- Experience in working on Polarized Neutron Reflectometry (PNR)
- Experience in nanofabrication by **UHV DC Sputtering** technique
- Experience in sample synthesis by **Hydrothermal** method
- Experience in analyzing data using **GenX**, **Origin Pro 9** and **MultiPak XPS** software
- Programming in **FORTRAN 90** and **C**
- Familiar with the usage and working principle of characterization techniques like **XRD, SEM, XPS, AFM, EDS, VSM, Raman** Spectroscopy
- Fluent in Hindi (Mother tongue), English (**TOEFL ibt** score: 101/120), and Punjabi

Achievements

Academic:

- Qualified for **Junior Research Fellowship (CSIR-JRF)** with **All India Rank – 97** in December 2019.
- Won **second prize** in Poster presentation in 7th IAPT National Student Symposium on Physics 3rd to 5th November, 2019.
- **Third prize** in Science Quiz in 12th Chandigarh Science Congress (CHASCON) February 12th-14th, 2018.
- Won **first prize** in Poster presentation in 5th IAPT National Student Symposium on Physics 10th to 12th November, 2017.
- Qualified for joint **CSIR-UGC National Eligibility Test for Lectureship (CSIR-LS)** with **All India Rank – 62** in November 2020.
- Winner of Robo-Race in Vortex Academic fest 2017 organized by Department of Physics, Panjab University.
- **Second prize** in Science Quiz in SCITRON Academic fest 2016 organized by all Science Departments of Panjab University.
- Won **second prize** in Science Quiz on Science Day 2020 organized by Department of Physics, IIT Roorkee

Extra-Curricular:

- Winner in various intra-department and hostel sports competitions (Table Tennis, Football, Volleyball, and Badminton)