



Birla Institute of Technology Mesra
Ranchi-835 215
Department of Physics

**Advt. for CRS Project Fellow (Junior) –I / CRS Project
Fellow (Junior)-II**

Applications are invited for CRS Project Fellow (Junior) –I / CRS Project Fellow (Junior)-II under a CRS project funded by UGC-DAE consortium for scientific research.

A Brief Description of the Project: We propose to **Optimize the Chemical vapor Deposition (CVD) growth conditions for defect free large crystallite 2D-semiconductors and their hetro-structures for Opto-electronic applications.**

Device footprint of opto-electronic devices based on silicon, germanium and III-V semiconductors are of the order of millimeters. Devices based on them suffer limitation in terms of narrow bandwidth, stringent fabrication criterion and have limited tolerance to temperature variations. 2D-semiconductors and in particular their hetro-structures holds immense potential as replacement of silicon, germanium and III-V semiconductors for photodetectors and optical modulators fabrication having superior properties. Due to their very long photo response time (ranging in between 10 ms-100 sec) and large density of trap state generated due to defects during growth, such devices has got limited actual applications. We plan to address the issue of slow response speed through control of trap states during growth and with tailored plasmonic response. In this project, we aim to establish the recipe of defect free large crystallite growth, enhance the light absorption through coupling with plasmonic nano-antennas and modify the photo-response time. Depending on the interest of the student, research work can be extended to various advanced functional materials which have potential technological applications.

Selected candidates will have a unique opportunity to work with various advanced experimental facilities available at UGC-DAE consortium for scientific research, Indore and the facilities at Birla Institute of Technology Mesra, Ranchi.

Essential and Desirable Qualifications:

For CRS Project Fellow (Junior) –I

a) M.Sc. (not earlier than 3 years) with a minimum of 55% marks in the concerned subject (for Science)

Or, M.E. / M. Tech. (not earlier than 3 years) 1st Class (for Engineering)

For / CRS Project Fellow (Junior)-II

M.Sc. (not earlier than 3 years) with a minimum of 55% marks in the concerned subject (for Science) + valid JEST/GATE/NET-JRF/Lectureship/UGC-CSIR NET JRF/Lectureship + Ph.D. registration of the student under the supervision of the PI at the University where PI's institute is affiliated

Fellowship and Allowances:

As per the existing guidelines For Research student:

For CRS Project Fellow (Junior) –I (Rs 14,000/- PM + HRA)

For CRS Project Fellow (Junior)-II (Rs 31,000/- PM + HRA)

Accommodation: Accommodation inside the campus is subject to availability. HRA would be given at a permissible rate for the candidates staying outside the campus.

Duration:

Initial appointment will be for one year, extendable in the slot of year depending upon the performance of the candidate. The project position is co-terminus with the project.

How to Apply: Interested candidates should

1. Email Curriculum-vitae
2. Email marksheets of 10th, 12th, B.Sc. and M. Sc.
3. Email copy of the qualifying exam JEST/GATE/NET-JRF
4. Single Email containing all above information should be sent to:
dilipsinghnao1@bitmesra.ac.in
5. Last date of receiving the application with all the documents: **July 15th, 2022**

Shortlisted candidates will be intimated by email before July 19th, 2022 and selection interview would be held on **July 20th, 2022**.

Registrar