



Birla Institute of Technology & Science, Pilani

Pilani Campus

Ref: ChE/2019/CRG-1

Dated: 14th June, 2019

Applications are invited from eligible candidates to work as a Junior Research Fellow (JRF) as part of DST-SERB-CRG project (Project No.CRG/2018/002943) at Chemical Engineering Department, BITS-Pilani- Pilani campus, Rajasthan. The details are as follows:

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| Project Title | Process development for bio-mitigation of flue gases (CO ₂ , SO _x , and NO _x) using chemolithotrophs and production of value-added products |
| Project Duration | 3 years |
| Principal Investigator (PI) | Dr Smita Raghuvanshi |
| Co-PI | Dr Suresh Gupta |
| Project Description | Flue gases are typically generated by the burning of fossil fuels such as natural gas, fuel oil, and coal. CO ₂ represents 68% of GHG emission into the atmosphere and SO _x is one of the main causes of acid rain and leads to degradation of the ozone layer. NO _x (NO, NO ₂) is one of the major contributors of photochemical smog, acid rain formation and tropospheric ozone formation in urban air. Hence project aims at economical, efficient, and effective biological alternative for mitigation and utilization of CO ₂ , SO _x , and NO _x using chemolithotrophs. Therefore, the project focuses on exploring the capabilities of chemolithotrophs for mitigating CO ₂ , SO _x and NO _x in dark at lab scale bioreactor/ fermenter and the production of valuable chemicals within the framework of carbon capture utilization (CCU). Further, the integration of developed bio-mitigation system with industrial liquid effluent containing inorganic chemicals (Fe[II], S ₂ O ₃ ²⁻ , heavy metal ions in reduced form, NO ₃ ⁻ , etc.) which act as a liquid media for chemotrophic growth can further reduce the cost of bio-mitigation system and can simultaneously address the problem of water pollution. Thus, the integration of CO ₂ , SO _x , NO _x mitigation, waste water treatment and downstream processing for the product recovery envisage the idea of bio-refinery. |
| Fellowship | Rs. 31,000/- per month for 2 years and Rs. 35,000/- per month in 3rd year. |
| Essential Qualifications | M.E./M.Tech with at least 60% marks in Chemical Engineering/Environmental Engineering/Biotechnology or relevant area. |
| Desirable Qualification | Motivated to carry out a quality research work in the relevant area and a priori experience of working on Gas chromatography, would be add on. |

Application procedure:

- Candidates should email bio-data to the PI (smita@pilani.bits-pilani.ac.in) **by 10th July, 2019**.
- Shortlisted candidates will be informed through email and called for interview to be held at Chemical Engineering Department, BITS-Pilani- Pilani Campus, Rajasthan.

Also note that:

1. For any queries regarding the position or project work, please email PI.
2. Position mentioned is temporary and for the period of duration of the project (3 years).
3. Selected candidate will be encouraged to join the Ph.D. program of BITS-Pilani as per institute rules.
4. If performance of candidate is found unsatisfactory, the position can be terminated with 1-month notice.
5. **No TA/DA will be paid for attending the interview.**

Dr Smita Raghuvanshi - PI



Birla Institute of Technology & Science, Pilani
Pilani Campus, Vidya Vihar
Pilani 333031, Rajasthan, India

Web: www.bits-pilani.ac.in