



Project Proposal for Ph.D.

Project Details (The research problem must clearly indicate the need for an interdisciplinary approach)

Project Title	Synthesis of the next generation PBO fiber with reduced UV degradation property
Project Summary (Minimum 500 and maximum 2000 characters)	Recently the setbacks of Zylon-based protective gears with high mechanical strength and better fire-retardant owing to degradation in the presence of UV-vis radiation has triggered the search for aging resistant fiber. The proposed research endeavours to develop indigenous PBO (Poly(p- phenylene benzobisoxazole)) fiber using Dry jet wet spinning. Here we need to develop the interrelation among rheology of polymer, solvency and fiber properties.

Ph.D. Supervisors+
(Supervisor 1 and Supervisor 2 cannot be from the same department of IITD)

Role	Name of Faculty	Academic Unit in IITD/Institute/University	Email ID (Official)
Supervisor 1*	Sudip K Pattanayek	Department of Chemical Engineering, IITD	sudip@chemical.iitd.ac.in
Supervisor 2	Rajiv Srivastava	Department of Textile and Fibre Engineering, IITD	rajiv@iitd.ac.in

*Supervisor 1 must be from IIT, Delhi.
+All cells in this table are mandatory fields that need to be filled by faculty for consideration of proposal.
\$The date of superannuation of supervisors should be at least three years from the date of registration of selected candidates.

Project requirements (Student qualifications, experience required, etc)
*The candidate will be shortlisted based on common shortlisting criteria decided by ScRC (SIRe)

- MS/MSc/M.Tech in Chemistry/Polymer science /Material Science/Textile
- M.Tech. in any engineering discipline with strong background in Physical Chemistry
- B.E. with GATE qualifications in Polymer Science/Textile/material science/ Chemical Engineering

Source of fellowship/funding and project number
(CSIR/UGC/DBT/ICMR/ICAR/NEET-PG/DST-INSPIRE/IRD/FITT Project details, if any)

RP05089G in IRD

Role of Faculty Members involved:

Supervisor-1	Guiding the physical chemistry/polymer physics and rheology component of project.
Supervisor-2	Guiding the chemistry/Textile component of the project

1. Approval from the respective DRC/CRC/ScRC of your Department/Centre/School will be required for using the "Full-time Institute Assistantship (Category-wise) (FIA)" for selecting the students in SRe.
2. Declaration:- Faculty members, please ensure that you have at least 3 years of service left before superannuation along with adequate sitting space & lab facilities for the SRe student.
3. PI/s are also encouraged to submit joint proposals with AIIMS, NII, JNU and institutes with which IITD has an existing MoU. If the Co-PI (Supervisor 2) is from outside IITD, kindly share his/her detailed CV.
4. If a research scholar is to be considered for selection under the project fellowship, then the project should have a minimum of two-year duration remaining.
5. A candidate applying with a valid JRF/INSPIRE/any national level fellowship should have at least two-year validity from the date of joining the Ph.D. program.
6. The third supervisor's name (if required) can be added only after the formation of Student Research Committee (SRC) subject to a strong recommendation of SRC and subsequent approval from the competent authority.
7. If Institute fellowship is being sought, then DRC approval of the parent department of Supervisor 1 is required at the time of selection.