



INDIAN INSTITUTE OF TECHNOLOGY ROPAR

ADVERTISEMENT- Junior Research Fellow (JRF)

(Project No. STARS2/2023-0812)

Applications are invited from highly motivated and eligible candidates for the following project under the **STARS** scheme funded by MHRD and managed by IISc, Bangalore.

Project title: Study of droplet dynamics and phase change on soft materials towards enhanced atmospheric water harvesting

Project description: Materials with low stress modulus can be classified as ‘soft’ in terms of their response to the capillary forces. Water droplets on such soft substrates show a distinctly different behaviour compared to usual rigid materials such as glass or metals. Due to the softness of the material, the surface tension of the drop locally deforms the substrate around the contact line region. This phenomenon is referred to as elastocapillary effect. Due to this effect, the wetting dynamics on soft substrates are significantly different from rigid solid substrates. The local deformation around the contact line of a drop on such substrates forms a wetting ridge that causes a significant reduction in apparent contact angle. This in turn influences how water condenses on such substrates. In summary, the interaction of liquid and soft substrates presents a number of interesting physical effects. This project aims to perform fundamental investigations into soft substrates wetting dynamics through, experiments and numerical simulations. The insights gained from such investigations will help to design new strategies for applications such as harvesting drinking water from fog and dew.

Details of the PI (Principal Investigator):

Dr. Chander Shekhar Sharma,

Assistant Professor, Department of Mechanical Engineering, IIT Ropar, Rupnagar-140001, Punjab, INDIA

Research Lab: www.chanderlab.com

Name of Position (1): Junior Research Fellow (JRF)

Duration: 3 years or the project completion date, whichever is earlier. The candidate will be appointed initially for one year and based on the performance, an extension will be given. *It will also be possible for the selected candidate to apply for Ph.D. Program as per existing institute rules.*

Emoluments: As per extant rules

Essential Qualifications: The applicant must meet at least one of the following two criteria:

- Master’s degree in Mechanical Engineering / Aerospace Engineering / Chemical Engineering from a recognized institute and with exceptionally good academic record with a minimum CGPA of 7.0 on a 10.0 point scale (or 70% marks) + good GATE/NET score
- Bachelor’s degree in Mechanical Engineering / Aerospace Engineering / Chemical Engineering from a recognized institute and with exceptionally good academic record with a minimum CGPA of 7.0 on a 10.0 point scale (or 70% marks) + good GATE/NET score

Desirable Qualities:

The candidate should have an extensive knowledge of Thermodynamics, Heat & Mass Transfer and Fluid Mechanics fundamentals.

How to Apply?

The applicant should send the following documents, *as a single PDF file*, through an **email** to chander.sharma@iitrpr.ac.in.

1. Completely filled application form given in the prescribed proforma (Annexure A)
2. Detailed Biodata with contact information of 3 references (email included)
3. Soft copies of all degree certificates and proof of GATE/NET score as applicable
4. ‘Statement of purpose’ (stating personal goals and research interests) (note more than 1 page)

The email must have the subject line: "**Application for the post of JRF (Contract) - STARS**". Last date of receipt of application: **28th February 2024**. Only shortlisted candidates will be called for interview.

Annexure A
APPLICATION PROFORMA

For JRF (Contract) for STARS project “Study of droplet dynamics and phase change on soft materials towards enhanced atmospheric water harvesting”

Personal Details

Full Name (In Capital)				Affix Recent Passport Size Photo
Date of Birth (DD/MM/YY)		Gender (Male/Female)		
Marital Status (Married/Unmarried)		Nationality		
Address for Communication		Permanent Address		
Mobile/Phone no.		E-mail		

Education Background (From Matriculation Onward)

S. No.	Degree	Board / University	Regular/ Part time	Year	Division	% Marks /CGPA*

***[Please also submit softcopy of the semester-wise mark-sheets as well as softcopy of degree]**

Qualifying Examination (GATE/CSIR/UGC/NET/ Others)

S. No.	Qualifying Examination	Branch	Year	Valid up to	Percentile	All India Rank	Any other information

Professional Experience (if any)

S. No.	Designation	Name of Organization	Period		Nature of Work
			From	To	

Research Publications (if any):

[Also attach softcopy of conference/journals papers separately, if applicable]

Awards, patents, prizes etc (if any):**Any other Relevant Information:****DECLARATION**

I hereby declare that I have carefully read the instructions and particulars supplied to me and that the entries made in this application form are correct to the best of my knowledge and belief. If selected, I promise to abide by the rules and discipline of the Institute.

I note that the decision of the Institute is final in regard to selection. The Institute shall have the right to expel me from the Institute at any time after my selection, provided it is found that I was admitted on false particulars furnished by me or my antecedents prove that my continuance in the Institute is not desirable. I agree that I shall abide by the decision of the Institute, which shall be final.

Place :.....

Date :

Signature of Applicant