



## 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 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 several interesting physical effects. This interdisciplinary project aims to perform fundamental investigations into soft substrate 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](http://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](mailto: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: **28<sup>th</sup> August 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)	<b>NOMAN BADER</b>			Affix Recent Passport Size Photo  
Date of Birth (DD/MM/YY)	25/09/1993	Gender (Male/Female)	MALE	
Marital Status (Married/Unmarried)	UNMARRIED	Nationality	INDIAN	
<b>Address for Communication</b>  NOMAN BADER, M20 108, TATA HOUSING, BOISAR, PALGHAR DISTRICT, MAHARASHTRA, INDIA. PINCODE: 401501		<b>Permanent Address</b>  S/O AKRAM ALI, NEW PONY SARAI, MALLITAL, NAINITAL, UK, INIDA. PINCODE: 263001		
Mobile/Phone no.	9557402784	E-mail	shahzaibnauman@gmail.com	

**Education Background (From Matriculation Onward)**

S. No.	Degree	Board / University	Regular/ Part time	Year	Division	% Marks /CGPA*
1	SSC	CBSE	REGULAR	2010	FIRST	83.6%
2	INTERME DIATE	AMU ALIGARH	REGULAR	2013	FIRST	80%
3	B.Tech	AMU ALIGARH	REGULAR	2017	FIRST	7.95 CPI
4	M.Tech	AMU ALIGARH	REGULAR	2019	FIRST	7.8 CPI

**\*[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
1	GATE	MECHANICAL ENGINEERING	2023	2026	93.96	3834	GATE QUALIFIED 7 TIMES

**Professional Experience (if any)**

S. No.	Designation	Name of Organization	Period		Nature of Work
			From	To	
1	ASSISTANT PROFESSOR	THEEM COLLEGE OF ENGINEERING, MAHARASHTRA	20/08/2022	15/10/2024	CONTRACT
2	ASSISTANT PROFESSOR	JAHANGIRABAD EDUCATIONAL TRUST GROUP OF INSTITUTIONS, BARABANKI	23/01/2020	16/08/2022	CONTRACT

**Research Publications (if any):**

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

**Awards, patents, prizes etc (if any):**

**Any other Relevant Information:** Certified in 10 NPTEL online certification courses.

**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 : BOISAR  
Date : 15/10/2024

NOMAN BADER  
Signature of Applicant