



प्रयुक्त यांत्रिकी विभाग  
मोतीलाल नेहरू राष्ट्रीय प्रौद्योगिकी संस्थान इलाहाबाद  
प्रयागराज-211004 (उ०प्र०), भारत  
**Department of Applied Mechanics**  
**MOTILAL NEHRU NATIONAL INSTITUTE OF TECHNOLOGY**  
**Allahabad – 211 004 (India)**

Advertisement No. 02 (663-R&C)/Project JRF/AMD/2024

Dated- 16/10/2024

**Advertisement for the Post of Junior Research Fellow (On Contract)**

Applications are invited from Indian nationals for the post of **Junior Research Fellow (JRF) (on contract)** in **SERB** research project entitled “**Numerical investigation of shock-wave/boundary-layer interaction at supersonic Mach numbers to characterize separation bubbles for improving the performance of propulsion systems**” under the area **Numerical and Computational Fluid Dynamics** of SERB File Number: CRG/2023/000943 dated 06/05/2024 sponsored by SERB, GOI, New Delhi.

The duly completed application (hard copy) on prescribed format along with scanned copies of supporting documents must reach “**Office of Dean (Research & Consultancy), Motilal Nehru National Institute of Technology Allahabad, Prayagraj-211004, Uttar Pradesh.**” A soft copy of the same must be emailed to [abhishekkundum@mnit.ac.in](mailto:abhishekkundum@mnit.ac.in) (email id of Dr. Abhishek Kundu, Department of Applied Mechanics) with the subject of the email as “**Application for JRF (on contract) in SERB Project: Adv. No 02 (663-R&C)/Project JRF/AMD/2024.**” **Hard copy and email of the complete application must reach on or before 06/11/2024, 5.00 PM (IST).**

**Description and Objectives of the Project:** The flow separation may be confined by a small separation bubble in the case of air intakes. Because of this bubble, the separation zone will expand and block the flow path, resulting in an unplanned intake. It is therefore needed to study the separation zone in SWBLI with unsteadiness and predict the size of the separation bubble. In this project, the determination of the separation length of the SWBLI over a wide range of Mach numbers, such as supersonic and hypersonic regions, while considering the unsteadiness of the SWBLI, is attempted numerically. From the study of the effect of flow parameters on separation, a complete correlation to determine the separation length with flow parameters such as Reynolds number, Mach number, incident shock strength, etc. will be given at different Mach number regimes. It can predict the size of the separation bubble, which will be useful to the supersonic and hypersonic aircraft engineer when designing the air intakes.



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The position is purely temporary and will be governed by the funding agency rules & service conditions of the Office of the Dean (Research & Consultancy), MNNIT Allahabad.

**Number of Position** : 01 (one)

**Essential Qualifications** : B.Tech. in Mechanical Engineering or Aerospace Engineering or an M.Tech. along with a valid GATE score / CSIR-UGC NET or any national level examinations conducted by central government departments and their agencies and institutions such as DST, DBT, DAE, DOS, DRDO, MHRD, ICAR, ICMR, IIT, IISc, IISER, etc. (OM No. DST/PCPM/Z-06/2022 dated 26.06.2023 for JRF/SRF/RA)

**Desirable Qualifications:** M.Tech in Applied Mechanics, Fluids Engineering, Thermal Engineering, Aerospace Engineering or any relevant discipline suitable to the work proposed in the project with 65% marks or 6.5 CGPA in M.Tech. One year of research experience in a related area is preferable. Working knowledge on Computational Fluid Dynamics related computer programming. Preference will be given to the candidate having experience in the Gas Dynamics and CFD solver writing.

**Fellowship** : Rs. 37,000 per month + HRA (16%)

**Other Benefits** : Accommodation may be available as per the availability and the Institute norms. Candidate selected for the JRF may register for Ph.D. if eligibility conditions as set by institute are met by him/her. Facility of yearly leave, carryover leave, medical benefits etc. may be available as per applicable rules of the project staff.

**Age Limit** : As per DST-SERB guidelines (Age limit is relaxable as per DST-SERB/GOI guidelines).



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**Tenure of Appointment:** Appointment will be made on contract basis for a period of one year initially, which may be extended depending on the performance evaluation on yearly basis till the end of project.

**Note:**

1. The applicant will be responsible for the authenticity of information, other documents and photographs submitted.
2. The Institute reserves the right to reject application at any time, and consider candidates of exceptional credentials without applications.
3. Qualification and experience may be relaxed by the Institute at any point of time for otherwise exceptional candidates. Mere, possessing the prescribed qualification does not ensure that the candidate would be called for Interview. The Candidates will be shortlisted on the basis of merit and need of the project.
4. Shortlisted Candidates will be informed by e-mail about the interview date. So, the candidate must provide valid Email IDs in their applications.
5. Shortlisted candidates have to present themselves for the interview on the interview date with updated CV, publications if any and original and attested photocopies of mark sheets/ certificates in support of their academic qualifications. **The mode of interview will be informed to the shortlisted candidates via the email id provided in the application form.**
6. Applicants in employment (private, government or any other organization) are required to submit a “**No Objection Certificate**” from the employer at the time of interview.
7. No TA/DA will be paid for appearing in the interview.
8. Address for sending hard copy of the application “**Dean (Research & Consultancy), MNNIT Allahabad, Prayagraj-211004.**”

Name of Principal Investigator : Dr. Abhishek Kundu

Designation : Assistant Professor

Department : Applied Mechanics

Email id : [abhishekkunduamd@mnnit.ac.in](mailto:abhishekkunduamd@mnnit.ac.in)



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**For office use only**

Application No.....

Self Attested  
recent passport  
size Photograph

**APPLICATION FORM**

**Advt.No .**

**Dated:**

<b>Research Project Entitled</b> - Numerical investigation of shock-wave/boundary-layer interaction at supersonic Mach numbers to characterize separation bubbles for improving the performance of propulsion systems						
<b>Funding Agency-</b> DST-SERB CRG grant						
<b>Name of P.I. -</b> Dr. Abhishek Kundu						
<b>Name of position-</b> Junior Research Fellow (on contract)						
<b>Department/Section-</b> Applied Mechanics						
1.	Name of the Candidate (In Capital letter)					
2.	Sex (Male/Female)					
3.	Marital Status (Married/Unmarried)					
4.	Date of Birth					
5.	Age as on last date of application	_____ Years	_____ Months	_____ Days		
6.	Father's/Husband's Name					
7.	Present/Contact Address					
8.	Permanent Address					
9.	Mobile No					
10.	E-mail					
11.	Nationality					
12.	Category	Gen/SC/ST/OBC/PH _____(enclosed attested copy of certificate) and women				
13.	GATE	Valid to _____ Score/Rank _____ up				
14.	Educational Qualification					
	<b>Qualification</b>	<b>Subject/Discipline</b>	<b>Board/Institute/Univ.</b>	<b>Year</b>	<b>% of marks</b>	<b>Div.</b>
	10th or equivalent					
	12th or equivalent					
	Diploma, if any					
	BA/B.Sc./B.E./B.Tech					
	M.A./M.Sc.					
	M.Phil./M.E./M.Tech*					

**\*Title of M.Tech.**

**Thesis:**.....

15	Details of Experience in chronological order. Enclose a separate sheet duly authenticated under your signature if necessary						
Organization	Position	Salary/Emoluments	Nature of Duties	Nature of appointment	Period of Experience	Year	Month
					Days		
16	Research Publications (Attach list):-			Numbers :			
	SCI Journals:						
	Non SCI Journals:						
	International Conference/Seminar ./ Symposium Proceeding:						
	National Conference/Seminar ./Symposium Proceeding:						
17	Any other information						
18	Indicated whether you propose to register for higher degree* at MNNIT, Allahabad. Yes/No (Name of higher degree is Ph.D.)						

**Note:-** \*Those candidates who wish to be admitted as student for higher degree must fulfill at least the minimum eligibility for the respective admission as available on the Institute website.

**DECLARATION**

I hereby declare that all the statements made in this application are true and complete and nothing has been concealed/ distorted. I am aware that, if at any time I am found to have concealed/distorted any material information, my engagement is liable to be summarily terminated without notice.

Place:  
Date:

Signature of the Applicant

**Enclosure**-Self attested copy of documents

1. Proof of Date of Birth
2. Mark sheets & certificates of all the examination passed
3. Category Certificate, if applicable
4. GATE /NET score card, if passed
5. Experience certificate, if any
6. Publications

**Note: Inability to submit application form in this format will result in cancellation of the application**