

Adv. No. 01 (226-R&C) /Project JRF/Maths/2024

Dated- 31/05/2024

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

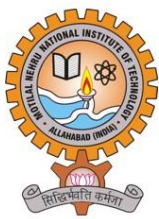
Applications are invited from Indian nationals for the post of Junior Research Fellow (on contract) in DBT research project entitled “**Magnetic-Pharmacodynamics of Nano-Drug Delivery in Pulmonary and Arterial System**” under the area **Theoretical and Computational Biology** of DBT File Number: BT/PR40552/BID/7/984/2020 dated 02/05/2024 sponsored by DBT, 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), MNNIT Allahabad, 211004, Prayagraj, U.P.**”. A soft copy of the same must be emailed to [bvasu@mnmit.ac.in](mailto:bvasu@mnmit.ac.in) (email id of Dr B. Vasu, Department of Mathematics) with the subject of the email as "Application for JRF (on contract) in DBT Project: Adv. No-01 (226-R&C)/Project JRF/Maths/2024. Hard copy and email of the complete application must reach on or before **21/06/2024, 5.00 PM (IST)**.”

**Description and Objectives of the Project:** This research project deals with the development, analysis and numerical simulation of mathematical models of magnetic targeting nano-drug delivery in pulmonary and arterial systems. Blood flow is treated as Newtonian in large arteries and non-Newtonian in small arteries, also a laminar fluid flow. Formulate the various shapes of geometries of diseased stenosis and discuss the influence of arterial permeability in the atherosclerosis regime. A fully developed physiological velocity profile is defined as the vascular inlet boundary condition. To overcome the incompleteness of vascular system, a proper pressure condition for the outlets is to be developed where a lumped mathematical model is derived to calculate the overall resistance at each outlet. Develop an advanced numerical method and algorithm to guide magnetic nano-drug delivery towards a specific targeted region in the arterial system. Apply computational fluid dynamics modelling to pulmonary vascular trees, Validate the numerical simulation results.

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.

<b>Number of Position :</b>	1 (One)
<b>Essential Qualifications :</b>	Postgraduate degree in basic science OR Graduate/ Post Graduate Degree in professional course selected through a process described through any one of the following: Scholars who are selected through National Eligibility Tests – CSIR-UGC NET and/or GATE 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. SR/S9/Z-08/2018 dated 30.01.2019 for JRF/SRF/RA)
<b>Desirable Experience:</b>	M.Tech./M.Sc. in Mathematics, Applied Mathematics, Applied Mechanics, Biomedical Engineering, or any relevant discipline suitable to the work proposed in the project. 75% marks or 8.0 CGPA in M.Sc. or 65% marks or 6.5 CGPA in M.Tech. One year research experience in related area: CFD analysis preferable
<b>Fellowship :</b>	Rs. 31,000.00 per month + HRA (16%)
<b>Other Benefits:</b>	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 is met by him/her. Facility of yearly leave, carryover leave, medical benefits etc. may be available as per applicable rules of the project staff
<b>Age Limit :</b>	As per DBT guidelines (Age limit is relaxable as per DBT/GOI guidelines)
<b>Tenure of Appointment :</b>	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.



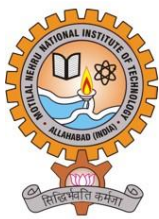
गणित विभाग  
मोतीलाल नेहरू राष्ट्रीय प्रौद्योगिकी संस्थान, इलाहाबाद  
प्रयागराज -211004, उत्तर प्रदेश, भारत  
Department of Mathematics  
Motilal Nehru National Institute of Technology Allahabad  
Prayagraj-211004, U.P., India



**Note:**

1. The applicant will be responsible for the authenticity of information, other documents and photographs submitted.
2. The Institute reserves the right to accept 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 E -mail 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. B. Vasu  
Designation : Associate Professor  
Department : Mathematics  
email id : [bvasu@mnnit.ac.in](mailto:bvasu@mnnit.ac.in)



गणित विभाग  
मोतीलाल नेहरू राष्ट्रीय प्रौद्योगिकी संस्थान, इलाहाबाद  
प्रयागराज -211004, उत्तर प्रदेश, भारत  
Department of Mathematics  
Motilal Nehru National Institute of Technology Allahabad  
Prayagraj-211004, U.P., India



**For office use only**

Application No.....

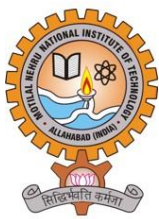
**APPLICATION FORM**

Advt.No.....

Dated.....

<b>Research Project Entitled</b>		<b>Magnetic-Pharmacodynamics of Nano-Drug Delivery in Pulmonary and Arterial System</b>				<b>Self-Attested recent passport size Photograph</b>
<b>Funding Agency</b>		DST-SERB CRG grant				
<b>Name of P.I.</b>		Dr. B. Vasu				
<b>Name of Position</b>		Junior Research Fellow (on contract)				
<b>Department/Section</b>		Mathematics				
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/State					
12.	Category	Gen/SC/ST/OBC/PH _____ (enclosed attested copy of certificate) and women				
13.	NET/GATE	A. NET: Yes/No; Roll. No.: _____, Year: _____, Score/Rank _____ B. GATE: Yes / No; Roll. No.: _____, Year: _____, Score/Rank _____				
14.	Educational Qualification					
	<b>Qualification</b>	<b>Subject/Discipline</b>	<b>Board/Institute/Univ.</b>	<b>Year</b>	<b>% of marks</b>	<b>Division</b>
	10th or equivalent					
	12th or equivalent					
	Diploma, if any					
	B.Sc./B.E./B.Tech.					
	M.Sc.					
	M.Phil./M.E./M.Tech*					
	<b>Any other degree (if any)</b>					

\*Title of M.Sc./M.Tech. Thesis.....  
.....



गणित विभाग  
मोतीलाल नेहरू राष्ट्रीय प्रौद्योगिकी संस्थान, इलाहाबाद  
प्रयागराज -211004, उत्तर प्रदेश, भारत  
Department of Mathematics  
Motilal Nehru National Institute of Technology Allahabad  
Prayagraj-211004, U.P., India



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 examinations passed
3. Category Certificate, if applicable
4. NET/GATE score card, if passed
5. Publications .
6. Experience certificate, if any

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