



Malaviya National Institute of Technology Jaipur
(An Institute of National Importance under Ministry of Education, Govt. of India)

DEPARTMENT OF PHYSICS

Advertisement for the post of 'JRF / Project Associate' in a NTTM-funded Research Project

Applications are invited from Indian nationals for the contractual position of '**Junior Research Fellow (JRF) / Project Associate**' as per the details given below.

1. Title of the Project: Development of Energy-Dense All-Carbon Lithium-ion Capacitor from Textile Waste derived Carbon Materials

2. Project Investigators:

- (a) Dr. Debasish Sarkar, MNIT Jaipur
(b) Dr. Manoj Kumar, MNIT Jaipur.

3. Funding agency: National Technical Textiles Mission (NTTM), Ministry of Textiles (MoT)

4. Details of Posts along with the Prescribed minimum Qualification/Requirements of the Required Staff:

Sl. No.	Name of the post	Number of positions	Prescribed minimum Qualification & Experience:	Total Monthly Emoluments
1.	Junior Research Fellow (JRF) / Project Associate	1 (One)	Junior Research Fellow (JRF) M. Sc. in Physics or in relevant disciplines with minimum 60 % marks or CGPA 6.75 (on 10-point scale) and a valid NET/NET(JRF)/GATE score.	₹37,000/- pm + HRA
			Project Associate-I M. Sc. in Physics or in relevant disciplines with minimum 60 % marks or CGPA 6.75 (on 10-point scale).	₹25,000/- pm + HRA
			Project Associate-II M. Sc. in Physics or in relevant disciplines with minimum 60 % marks or CGPA 6.75 (on 10-point scale). And Two (2) years' experience in Research and Development in industrial and academic institutions or science and technology organizations and scientific activities and services.	₹28,000/- pm + HRA

5. Duration: One year (likely to be extended further as per project tenure, subject to annual performance review)

6. Job description: Experimental research work, data analysis & reporting. Candidates having hands-on experience in nanomaterial synthesis, materials science, electrochemistry, electrochemical techniques, and instrumentation will be given preference.

7. Project description:

Among various energy storage systems, batteries and supercapacitors (SCs) are frontrunners in renewable energy storage due to their high energy and power density, respectively. However, to overcome poor power density of batteries owing to slow faradaic reactions and poor energy density of the SCs arising from their double-layer charge storage mechanism, experts have compelled to hybridize both of these systems in a single device, i.e., hybrid-ion supercapacitors (HICs). HICs with a battery-type anode and capacitor-type cathode deliver much higher energy density than SCs. Still, it is challenging to integrate excellent energy/power density and good cycle stability in a single HIC device owing to inherent mismatching of cycling and rate capability traits between bulk insertion anodes and surface adsorption cathodes. Overcoming these challenges through the development of all-carbon Li-ion capacitors (ACLICs), which utilize carbonaceous materials with different structural features in both the electrodes, is the core objective of this project.

Interested candidates may submit their application online by clicking at the “[Apply here](#)” link on or before **14.02.2025**. Candidates are required to upload detailed CV (including Name/Date of Birth/Category/Educational Qualifications/Master’s project/Work experience/Publication details (if any)/communication address with valid email id and mobile no. etc.). Copies of all the Certificates/Marksheets must be uploaded in a single pdf file named after the candidate.

[Apply here!](#) (On or before 14.02.2025)

Candidates may also note the following:

- a) Appointment is purely temporary and will terminate automatically without any notice or compensation on termination of the research scheme and the research student shall have no claim of appointment/absorption in funding agency or in MNIT Jaipur.
- b) MNIT Jaipur reserves the right to fix suitable criteria for short-listing of eligible candidates satisfying advertised qualification and requirements of the project post.
- c) The committee also reserves right for not selecting any candidate/offering lower post in case candidates are not found suitable for the post advertised.
- d) Only shortlisted candidates will be informed for the interview by e-mail/Mobile and no separate interview letter will be issued for the same.
- e) Candidates should appear for the interview at their own cost along with their original certificates. No TA/DA is admissible for attending the interview.
- f) The selected candidates can opt for regular PhD program offered by MNIT provided they satisfy eligibility criteria.

For any further information, the applicants may contact the PI by email.

Dr. Debasish Sarkar
(Principal Investigator)

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