

Malaviya National Institute of Technology Jaipur
Department of Physics

Advertisement for the post of 'Research Student/Project Associate-I' in a UGC-DAE CSR-funded Research Project

Applications are invited from Indian nationals for the contractual position of '**Research Student/Project Associate-I**' as per the details given below.

1. Title of the Project: In-situ and Operando X-ray Absorption Spectroscopy of the MoS₂ Electrode to Reveal Its Charge Storage Mechanism in a Supercapacitor Cell

2. Project Investigators:

- (a) Dr. Debasish Sarkar, MNIT Jaipur
- (b) Dr. Manoj Kumar, MNIT Jaipur.
- (c) Dr. Dinesh Kumar Shukla, UGC-DAE CSR Indore, and
- (d) Dr. Dibyendu Bhattacharyya, BARC Mumbai

3. Funding agency: UGC-DAE CSR Indore.

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.	Research Student/Project Associate-I	1 (One)	Research Student: M. Sc. (not earlier than 3 years) in Physics or in relevant disciplines with minimum 60 % marks or CGPA 6.75 (on 10-point scale).	₹14,000/- pm + HRA
			Project Associate-I: M. Sc. (not earlier than 3 years) in Physics or in relevant disciplines with minimum 60 % marks or CGPA 6.75 (on 10-point scale) with valid JEST/GATE/NET-JRF/Lectureship/UGC-CSIR NET JRF/Lectureship	₹31,000/- 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:

Supercapacitors (SCs) have emerged as a new class of storage devices that can be charged or discharged quickly with higher power densities than storage batteries. However, their energy densities are still limited and there is a definite need to increase it to cope with the global energy demand. Indeed, energy density of supercapacitors can be enhanced by increasing their capacitance as well as operating potential window. Enhancing capacitance of electrode materials still remains a challenge to the global research community.

Now, to reveal the charge storage mechanism in electrode materials, in-situ and operando X-ray absorption spectroscopy (XAS) technique can be used as an experimental tool. XAS is an electronic absorption technique for which the initial state is a deeply buried core level. The photon energies corresponding to such transitions are governed primarily by the binding energies of the initial state. Because the binding energies of core electrons vary significantly among atomic species, this makes XAS an element-selective spectroscopy. Therefore, one of the objectives of the project would be design and development of a state-of-the-art facility for in-situ and operando X-ray absorption spectroscopic (XAS) studies of electrode materials used in batteries/supercapacitors at UGC-DAE CSR Indore Beamline.

Interested candidates may submit their application online by clicking at the “[Apply here](#)” link on or before **30.06.2022**. 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 **30.06.2022**)

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.

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