Indian Institute of Technology Delhi
School of Interdisciplinary Research (SiRe)

PhD Project

Project Details

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<th>Project Title</th>
<th>Continuous Flow–Electrode Capacitive Deionization for Water Desalination</th>
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Project Summary

The project is intended to develop a novel flow electrode capacitive deionization based water desalination process using various nanomaterials as flow electrodes and novel ion exchange membranes. Our aim will be to achieve the following objectives in this project:

- Synthesis and characterization of suitable carbon-based nanomaterials for flow electrodes.
- Synthesis and fabrication of novel ion exchange materials and membranes.
- Development of different continuous flow electrode capacitive deionization (FCDI) models for water desalination and energy recovery.

PhD Supervisors

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<tr>
<th>Role</th>
<th>Faculty</th>
<th>Academic Unit in IITD</th>
<th>Email ID</th>
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<tr>
<td>Supervisor 1</td>
<td>Prof. Bijay P. Tripathi</td>
<td>Dept. of Materials Science &amp; Eng.</td>
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<tr>
<td>Supervisor 2</td>
<td>Prof. Bhanu Nandan</td>
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Project requirements (Student qualifications, experience required, etc.)

M.Sc./M. Tech. in Chemistry/Organic chemistry/ Materials Science and Engineering/Polymer Science/Textile and Fibre Engineering/Nanotechnology with a valid GATE score or with Inspire/CSIR-UGC fellowship

Source of funding (IRD/FITT Project details, if any)

Matching slot against IRD project: RP04011

Role of Faculty Members involved:

Prof. B. P. Tripathi: Polymer synthesis, nanomaterials synthesis, electrochemistry, FCDI performance analysis, etc.

Prof. B. Nandan: Carbon based electrode materials synthesis, characterizations, electrochemical performance, etc.