



Start date: ASAP

Term: One year, full-time, with 1-year extension

Location: Ann Arbor, Michigan (in-person preferred)

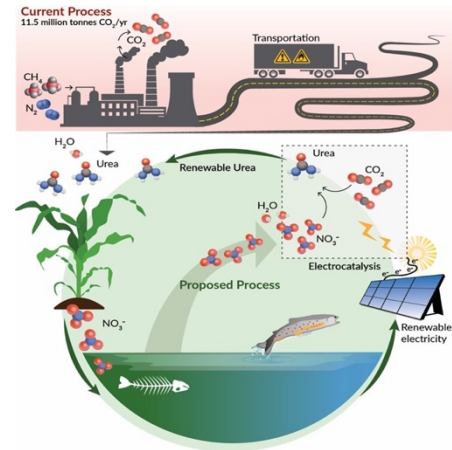
Salary: \$60,000 - \$65,000 (benefits eligible)

Professor Bala Chandran, based at the Mechanical Engineering Department in the University of Michigan, invites applications for a 1-year Postdoctoral Research Fellowship. The fellow will lead a research project in computational modeling of electrochemical devices targeting fertilizer production from wastewater. Specifically, the candidate will develop multiphysics transport and kinetic models for electrochemical carbon dioxide and nitrate reduction reactions.

The candidate will be part of a [recently funded multidisciplinary team](#) to assemble the carbon, nitrogen and oxygen atoms in urea by combining water, CO<sub>2</sub> and nitrate (NO<sub>3</sub><sup>-</sup>) with electricity. This co-reduction process directly consumes carbon dioxide as well as nitrate, which is among the most prevalent wastewater pollutants in the world.

To be considered for this position, candidates should have received a PhD in Mechanical, Chemical, Chemistry, Materials Science, or a similar field. Desired training, technical skills, experience, knowledge, and skills are:

- **[Required]** Strong training and background in electrochemical systems or chemical catalysis, and continuum model development for transport and reaction phenomena.
- **[Required]** Knowledge on computational modeling using commercial software (COMSOL, ANSYS, OpenFOAM, etc.) and/or in-house codes to model flow, species transport, reactions, and heat transfer.
- **[Beneficial other skills]** data-driven/machine learning modeling for partial differential equations; electrocatalysis fundamentals; systems-level techno-economic analyses.
- Experience with prototyping, design, and experimental electrochemical systems will be considered a plus.
- Excellent written and oral communication skills
- Strong team player with willingness to hone leadership and mentorship skills through mentoring graduate and undergraduate students, assisting with technical reports, and helping to coordinate other projects in related areas.



The successful candidate will join a cooperative group of postdoctoral, PhD, MS, and undergraduate researchers in Dr. Bala Chandran's [TREE Lab](#). Research activities will involve both fundamental and applied research components and the candidate will benefit from interacting with the broader team on this project with experts from Chemical Engineering and Chemistry departments, and additionally have synergetic contributions to our group's collaborative efforts in a recently funded [Energy Frontier Research Center](#). Relevant prior publications from my group are in [modeling photoelectrochemical ammonia recovery from wastewater](#), [electrocatalytic nitrate-to-ammonia conversion measurements](#), and in [solar water splitting reactors](#).

To apply, please send 1 PDF file to [rbchan@umich.edu](mailto:rbchan@umich.edu) with **[Echem, Postdoc Applicant]** included in the subject line with the following details:

1. Cover letter describing your relevant experiences, how it connects with the required skills sets, your key publications related to this position, your start
2. Curriculum vitae.
3. 2-3 references (name, title, affiliation, email address, and your relationship to them) (letters are not required)

The University of Michigan is an equal opportunity employer.