



Doctoral student / postdoctoral fellow position in theoretical electrochemistry

Position: Doctoral student / postdoctoral fellow in theoretical electrochemistry

Supervisors: [Prof. Avner Rothschild](#) (Technion) and [Prof. Arik Yochelis](#) (BGU)

About the position:

We are looking for a doctoral student and/or postdoctoral fellow who is creative, open-minded and seeks theoretical challenges, to join multidisciplinary research related to energy storage in batteries and green hydrogen. The project is currently supported by the Israel Science foundation (ISF).

The research project is expected to advance the frontiers of knowledge of electrochemically-induced phase transitions in electrodes used in rechargeable batteries and electrolyzers for green hydrogen production, with implications to other types of energy storage devices. It is part of a long-standing collaboration between Prof. Avner Rothschild, an experimental material scientist and engineer, and Prof. Arik Yochelis, a physicist interested in understanding the spatiotemporal dynamics in complex systems.

The theoretical work will involve, but not be limited to: chemical interactions and charge transfer reactions, phase separation processes, pattern formation and bifurcation theories, numerical computations of partial differential equations, and asymptotic multiple time-scale perturbation theory (a.k.a. amplitude equations). While the position is theoretical the research will also comprise a deep understanding of experimental results and a close collaboration with experimentalists.

Responsibilities:

- Modeling and analysis of experimental data
- Design of predictive experiments and methodologies
- Development of a general theory of multi-phase dynamics coupled to Coulombic interactions
- Conducting numerical computations and simulations

Ideal candidates should have a degree in either Physics/Applied Mathematics/Physical Chemistry/Engineering together with theoretical inclination, and interest in:

- Dynamical systems and/or pattern formation
- Numerical analysis of partial differential equations
- Electrochemistry
- Soft condensed matter
- Fluid dynamics

How to Apply:

Coordinate a meeting by sending a cover letter with an enclosed CV to Prof. Rothschild (avnerrot@technion.ac.il) and/or Prof. Yochelis (yochelis@bgu.ac.il)