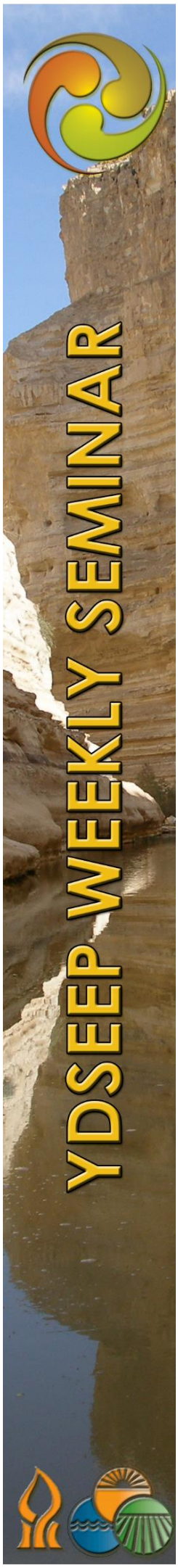

Ben-Gurion University of the Negev
Blaustein Institutes for Desert Research
The Swiss Institute for Dryland Environmental and Energy Research
Alexandre Yersin Department of Solar Energy and Environmental Physics

Electrically charged self-assembly: Gradient flow media with non-equilibrium properties

Arik Yochelis

Alexandre Yersin Department of Solar Energy and Environmental Physics

Abstract

Self-assembly driven by phase separation coupled to Coulombic interactions is fundamental to a wide range of applications, examples of which include soft matter lithography via di-block copolymers, membrane design using poly-electrolytes, and renewable energy applications based on complex nano-materials, such as ionic liquids. I will show by using two continuum case models, ionic liquids and charged polymers, that although charged self-assembly is a gradient flow system, it surprisingly displays several fundamental features that are related to far from equilibrium systems (e.g., chemical reaction-diffusion media and vegetation patterns). The latter are not only enable natural emergence of Turing patterns in conserved media but also suggest novel strategies to form spatially localized patterning.

Date & Location:

Tuesday, April 10, 2018, 11:00

Lecture room, Physics Building (ground floor)