



**Wolfson Department of Chemical Engineering Seminar**  
**Lecture Hall 6, Wolfson Department of Chemical Engineering,**  
**Wednesday November 13<sup>th</sup>, 2019 at 13:30**

## **Strange Dynamics of Wetting**

**Assist. Prof. Ofer Manor**

Department of Chemical Engineering, Technion

Dynamic wetting is an abundant mechanism traversing coating, deposition, drying, and fluid flow in micro and nano-fluidics among other processes. Here we I will consider wetting effects in pattern deposition, acoustically actuated coating, and acoustically actuated nano-fluidics. I will commence the seminar by considering recent experimental and theoretical findings on non-trivial wetting effects in the pattern deposition (convective self assembly) of polymer from a volatile solvent; the process is employed nowadays for the fabrication of simple macro- and micro-electronic platforms and for the identification of biological and chemical agents. Then, I will consider the coating of a vertical substrate by oil and by aqueous surfactant solutions using MHz-frequency surface acoustic waves (SAWs); the process is a reminiscent of the Landau-Levich coating mechanism, which is widely employed in the industry. I will show that a balance between capillary, acoustic, and gravitational forces support finite coating of the vertical substrate by aqueous solutions, and continuous coating of the vertical substrate by oil. Finally, if time suffices, I will further discuss a newly found physical mechanism, which is associated with the SAW actuation of liquid in nano-channels.

**Refreshments will be served at 13:15**