

סמינר מדעי היסוד  
יום שלישי 31.3.2015 בשעה 14:00-14:50 בפיקוס 202

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## **Lagrangian Particle Methods for Vortex Dynamics**

### **Abstract**

This talk will describe how Lagrangian particle methods are being used to compute the dynamics of fluid vortices. In these methods the flow map is represented by moving particles that carry vorticity, the velocity is recovered by the Biot-Savart integral, and a tree code is used to reduce the computation time from  $O(N^2)$  to  $O(N \log N)$ , where  $N$  is the number of particles. I'll present vortex sheet computations in 2D with reference to Kelvin-Helmholtz instability, the Moore singularity, spiral roll-up, and chaotic dynamics. Other examples include vortex rings in 3D, and vortex dynamics on a rotating sphere.

מתאמים: פרופ' י. גולדמן, ד"ר ש. מיברג, פרופ' י. סטאנצ'סקו  
ופרופ' ד. פישלוב

אפקה- המכללה האקדמית להנדסה בתל-אביב, מבצע קדש 38, תל-אביב