

## סמינריון

הנדך מוזמנ/ת להרצאה סמינריונית של הפקולטה להנדסת מכונות שתתקיים ביום ה' 15.12.21  
(כ"א בכסלו, תשפ"ב), בשעה 14:00 באמצעות הזום :  
<https://technion.zoom.us/j/95799574982?pwd=YXhpL05XSEVCakJpeVd4TFIJS05jdz09>

**מרצה :** הראל קלופפר

**מנחה :** פרופ' רנה ואן הוט

**על הנושא :**

### **Experimental investigation of spanwise secondary flows in boundary layer flows above vegetation canopies**

**תקציר ההרצאה :**

Urban and agricultural landscapes are often characterized by abrupt changes in surface “roughness”. When the prevailing geostrophic flow is parallel a surface heterogeneity, large secondary spanwise circulations emerge within the flow that affect surface fluxes of momentum, heat, and mass. The influence of spanwise heterogeneity and canopy configuration on possible appearance of secondary circulations was investigated. The experiments were performed in environmental wind-tunnel (25 m long, 2x2 m<sup>2</sup> cross-section) at the Technion. Using an array of spires and a shear generator, an artificial atmospheric boundary layer with the desired velocity profile and a thickness of 70 cm was created. The 5 m long model canopy was modeled after available leaf-area index data for corn. It consisted of triangular perforated sheet elements that were mounted on strips for easy spatial rearrangement of the canopy. Flow measurements were performed by a stereoscopic particle image velocimetry system, enabling spatially resolved measurements of the mean and turbulent flow characteristics. Measurements were acquired at 3 different elevations: inside the canopy, at canopy top height, and above the canopy. Acquired velocity fields will be presented and the effect of spanwise heterogeneity will be discussed as well as the possible appearance of secondary spanwise circulations. Since the latter are driven by an imbalance between turbulent kinetic energy (TKE) production and dissipation, terms in the TKE transport equation will be evaluated.

בברכה,

פ"מ איתי סאס

מרכז הסמינרים