

סמינריון

הנדך מוזמנות/ת להרצאה סמינריונית של הפקולטה להנדסת מכונות שתתקיים ביום ה' 1.10.2020

(י"ג בתשרי, תשפ"א), בשעה 14:30 באמצעות הזום :

<https://technion.zoom.us/j/91302760483>

מרצה : עמית הרשקוביץ

מנחה : פרופ' חרנה ואן האוט

על הנושא :

Experiments on the interaction between a freely moving sphere and a turbulent boundary layer

The seminar will be given in Hebrew

תקציר ההרצאה :

Particle-flow interactions play a key role in both natural phenomena (e.g. sediment transport) and industrial applications (e.g. pneumatic conveyors). The interaction between a freely moving sphere (particle) and a turbulent boundary layer flow is a fundamental problem in this field. Although it is a widely studied subject, no experimental data exists in which the 3D sphere dynamics and the 3D flow field around it were measured simultaneously. In this work, time-resolved Tomographic-PIV measurements were performed tracking the motion of refractive index-matched hydrogel spheres advected within a turbulent boundary layer. In order to track the spheres, they were "tagged" by tracer particles introduced as "spokes" inside the hydrogel spheres.

In this research, a method was developed for the simultaneous extraction of both the 3D sphere dynamics (translation and rotation) and the 3D flow field around it. The method was applied on several test cases and the interaction between the spheres and the coherent structures residing within the turbulent boundary layer was analyzed. The results demonstrated the complex transient coupled dynamics of the sphere and the flow.

בברכה,

ד"ר איתי סאס

מרכז הסמינרים