

סמינר - SEMINAR

הנדך מוזמן/ת להרצאה סמינריונית של הפקולטה להנדסת מכונות, שתתקיים ביום ד' 30.10.2019
(א' בחשון תש"פ), בניין לידי דיוויס, אודיטוריום 250, 13:00.

מרצה:

Assist. Prof. René van Hout

Faculty of Mechanical Engineering
Technion

על הנושא:

Experimental fluid mechanics research: What's new at the EMPFL?

The seminar will be given in English

להלן תקציר ההרצאה:

In this talk I will discuss some of the research topics that are being studied at the Environmental Multi-Phase Flow Laboratory (EMPFL). At the EMPFL we study a wide range of topics ranging from particle-laden flows, wake flows, vortex-induced-vibrations (VIV) to impinging jet heat transfer. I will focus on two particular topics. First, fiber translational and rotational motion in isotropic turbulence and in wall-bounded turbulent flows will be discussed. Understanding the translational and rotational motion of anisotropic particles (of which fibers are a particular class) in turbulent flows is of importance in a wide range of environmental, industrial and biological applications, such as light reflection by ice crystals in the atmosphere, the paper-making industry, and deposition of fibrous material (such as asbest) in the lungs. However, present models are unable to accurately predict the complex motion of anisotropic particles and at the EMPFL, we perform measurements that fully resolve fiber motion and the surrounding fluid motion. Second, the flow in the wake a sphere either held stationary or undergoing VIV will be discussed. VIV can lead to damage to structures or alternatively may be used for green energy harvesting. Here, the first fully resolved three-dimensional flow field measurements in the wake of the sphere will be discussed. These measurements shed light on the complexity of the vortex shedding and fluid structure interaction and allow to improve our understanding of the way fluid forces and structural dynamics act together. State-of-the-art three-dimensional (3D) measurement techniques (holography and tomographic particle image velocimetry) are used to resolve the 3D fiber motion or the 3D velocity field in the wake of the sphere.

בברכה,

פרופ' איתי סאס
מרכז הסמינרים