סמינריון

הנך מוזמן/ת להרצאה סמינריונית **במסגרת הדוקטורט** של הפקולטה להנדסת מכונות,
שתתקיים ביום ה׳ 2.08.2018 (כא׳ באב, תשע״ח), בניין דן קאהן, אודיטוריום 1, 13:30.

מרצה :	שי אלבז
מנחה :	פרופ״מ אמיר גת

על הנושא:

Modelling ElastoHydrodynamic Interactions with application to soft robotics, geophysics and biomechanics

The seminar will be given in English

תקציר ההרצאה :

Viscous fluid enclosed in a flexible structure may apply stress at the fluid-solid interface and thus deform the elastic structure. Deformation of the solid, in turn, induces pressure and velocity fields in the fluid. This fluid-structure interaction is the driving mechanism in many biological flows. Many examples arise in physiology, such as pulmonary airway reopening and closure or the peristaltic motion (generation of flow by muscle contractions) of blood vessels. In geophysics examples are also found in abundance, such as geological formation of laccoliths by intrusion of lava beneath the earth's crust or volcanic eruptions in which lava flows freely but solidifies at its upper surface. Viscous flow and elastic structure interactions are also at the heart of many modern engineering applications. These include soft robotics, in which liquid and gas flows are used to actuate predesigned elastic structures or lab-on-a-chip devices in which soft PDMS channels are used to transport flow in micro-geometries. The seminar will focus on analytic investigation of the propagation of viscous liquids and gases into elastic media in several canonical configurations. A process which is governed by evolving dominant balances between elastic and viscous forces. Attention will also be given to the elastohydrodynamic contact-line problem which involves transitions in these dominant balances and singular asymptotics. We will also show how viscous-elastic dynamics can be leveraged to achieve spatial and temporal actuations of solid structures by means of simple excitations.

בברכה,

פרופ״א אמיר סאס
מרכז הסמינרים