

סמינר - SEMINAR

הנדך מוזמן/ת להרצאה סמינריונית של הפקולטה להנדסת מכונות, שתתקיים ביום ב' 19.03.2018 (ג' בניסן, תשע"ח), בבניין דן קאהן, אודיטוריום 1, 14:30.

מרצה:

Assistant Prof. Amir Gat

Faculty of Mechanical Engineering
Technion

על הנושא:

Dynamics of Solid-Fluid Composite Structures and Actuators

The seminar will be given in English

להלן תקציר ההרצאה:

We present analysis of transient dynamics of elastic structures containing viscous fluid within internal cavities. An external stress-field acting on such elastic structures will deform the internal cavities, and thus create internal viscous flow. This internal flow will in turn induce a stress-field on the liquid-solid interface, deforming the elastic structure and thus modify the dynamic response of the structure to external stress. In addition, viscous-elastic transient dynamics of such solid-fluid structures can be initiated by setting the fluidic pressure at an inlet connected to the internal cavities, method commonly used in soft-actuator and soft-robotic applications. This seminar will present a discussion of the equations and physical mechanisms governing such solid-fluid structures, as well as analysis of transient dynamics due to external excitations for several fundamental configurations, including: slender elastic channels, Hele-Shaw cells, porous structures, and elastic beams embedded with internal cavities. The presented results can be applied to define the required geometric and physical properties of such structures in order to achieve specific response to external excitations, thus allowing to leverage viscous-elastic dynamics to create novel soft-actuators and fluid-solid composite materials with unique mechanical properties.

בברכה,

פרופ' א"מ אתיו סאס
מרכז הסמינרים