סמינריון

הנך מוזמן/ת להרצאה סמינריונית של הפקולטה להנדסת מכונות שתתקיים ביום ה' 13.08.2020
(כ"ג באב, תש"פ), בשעה 13:30 באמצעות הזום :

https://technion.zoom.us/j/94980898112

מרצה: דר זוסמן

מנחה: פרופ' אולג גנדלמן

על הנושא:

Effect of finite vessel stiffness on transition from two-dimensional liquid sloshing to swirling: reduced-order modeling

The seminar will be given in Hebrew

תקציר ההרצאה :

Transporting of liquid cargo, or earthquakes, are well-known trigger of oscillations ("sloshing") of the liquid inside the containers. As a result, the liquid applies hydraulic pressures and impacts to the vessel inner walls, with possible hazardous effect on the vessel stability and robustness. Therefore, the ability to predict the system dynamics and the resulting interaction stresses is a main concern for engineers.

When a storage tank is horizontally excited, the contained liquid starts to slosh with normally two-dimensional pattern. However, as the excitation frequency approaches resonance, the liquid exhibits three-dimensional rotary motion, called swirling. Previous works which dealt with swirling refer to the vessel as a perfect rigid structure, and therefore neglects the interaction between the sloshing liquid and the structural modes of the tank. In this research, we present an equivalent mechanical model which aims to predict the transitions between two and three-dimensional sloshing in a tank with finite stiffness. The effect of the coupling between the tank and the tank-liquid coupling on this transition was studied. Analytical predictions are also presented.

בברכה,

פרופ"א מתי סאס
מרכז הסמינרים