סמינריון

הנך מוזמן/ת להרצאה סמינריונית של הפקולטה להנדסת מכונות שתתקיים ביום ה׳ 24.09.2020

(ו׳ בתשרי, תשפ״א), בשעה 13:30 באמצעות הזום :

https://technion.zoom.us/j/96748603298

מרצה :	שחר לוין
מנחה :	פרופ׳ יורם הלוי

על הנושא:

מידול ובקרה של מבנים גמישים אשר נתונים לכוח מפורס, באמצעות משוואת הגלים

Modeling and control of flexible structures with distributed actuation governed by the wave equation

The seminar will be given in Hebrew

תקציר ההרצאה :

The research deals with infinite-dimensional transfer functions that describe the dynamic behavior of flexible structures under an external force excitation. In this presentation, three different topics will be presented.

Finite dimension models using Padé approximation - The exact transfer function was derived utilizing delays, which represent traveling waves. The delay element is infinite-dimensional; hence control and analysis are complicated. In order to overcome this problem, there exist several approaches to finding a rational approximation, e.g. FEM. We derived a new method, based on the use of Padé approximation for those delays, and show its advantages when evaluated in terms of time and frequency responses.

A multiple-input multiple-output (MIMO) system – Previous research dealt mainly with single-input-single-output (SISO) transfer functions. Several closed-loop control schemes were analyzed based on the traveling wave approach. These schemes include a different number and location of active and passive controllers.

Systems with distributed actuation - In practical engineering applications, there is no point actuation, then the actuation is distributed. Our goal was to find a transfer function where the structure is subjected to a distributed force. A dedicated control law for this problem was then derived and investigated as a function of the spatial distribution.

בברכה,

פרופ״א אמץ סאו
מרכז הסמינרים