הטכניון – מכון טכנולוגי לישראל **הפקולטה להנדסת מכונות**

סמינריון

הנך מוזמן/ת להרצאה סמינריונית של הפקולטה להנדסת מכונות, שתתקיים ביום ה' 15.10.15 (ב' בחשון, תשע"ו), בבניין דן-קאהן, קומה 0, אודיטוריום 1 בשעה 14:30

יצרה: אהרון יפה

מנחה: פרופ'/ח דוד אילתה

על הנושא:

Parametric Amplification in Electrostatic Resonators

להלן תקציר ההרצאה:

Resonators are a prevalent building-block in filtering, sensing, and clocking applications. The quality-factor of MEMS resonators is superior to what can be achieved with electric circuits. This motivated intensive research and development of micro-scale electromechanical resonators that has been on-going during the last four decades. Initially, much effort was invested in implementing linear resonators, with the intention of benefiting from their frequency stability. However, over time, it has been realized that nonlinear resonators offer other unique benefits, and much effort has been invested in studying and designing parametric resonators.

The current study is of a system which combines a linear resonator with parametric amplification. The intention is to enhance the performance of a linear resonator, while avoiding the instabilities associated with parametric resonance.

Using the technique of harmonic-balancing, the steady-state dynamics of the system was investigated. Advantages of the parametrically amplified resonator are presented, including significant amplification at the resonance frequency, along with generating additional frequency peaks. The influence of each of the parameters on the system behavior is examined.

בברכה,

פרופ'/א אמיר שמן

מרכז הסמינרים