

סמינריון

הנך מוזמנת להרצאה סמינריונית של הפקולטה להנדסת מכונות, שתתקיים ביום ה' 21.04.16 (יג' בניסן, תשע"ו), בבניין דן-קאהן, קומה 0, אודיטוריום 1, 14:30.

ירצה: ערן בוקי

מנחה: פרופ'ח ראובן כץ
מנחים שותפים: פרופ'ח מרים זקסנהויז

על הנושא:

Monitoring and Stabilizing Arm Tremor of Parkinson's patients

The seminar will be given in Hebrew

להלן תקציר ההרצאה:

Tremor is a rhythmic, unintentional, oscillatory movement of a limb that is produced by alternating contractions of reciprocally innervated muscles. While sometime psychological therapy is helpful, they are usually treated with either medication or invasive surgery that may have adverse side-effects. In the literature one can find the use of active suppression (like Functional Electrical Stimulation or DC motor) and passive suppression (like Viscous Beam). In this study, we developed a device in the form of a bracelet that operates like a mass tuned damper for passive suppression of pronation/supination arm tremor.

Passive suppression is simpler than active vibration suppression since it does not require motors and control. However, it requires careful tuning, therefore we conducted experiments on tremor patients in order to characterize the frequency content of the tremor. We found that the typical measured tremor is in the range of 4.36-6.11 [Hz]. In order to test the device prior to experiments with subjects, we developed and built a mechanical prototype of the forearm. Using the device on the prototype of the forearm, we demonstrated the reduction of tremor angular amplitude in frequency higher than 4 [Hz], and reducing up to 90% in 5 [Hz].

We have characterized the dynamic behavior of arm Parkinson tremor and demonstrated that passive suppression can be effective for reducing tremor amplitude for individual patient.

בברכה,

פרופ' ח' ראובן כץ

מרכז הסמינריון