Technion-Israel Institute of Technology
Faculty of Mechanical Engineering

הטכניון-מכון טכנולוגי לישראל
הפקולטה להנדסת מכונות

סמינריון

הנך מוזמן/ת להרצאה סמינריונית של הפקולטה להנדסת מכונות, שתתקיים ביום ב׳ 12.11.2018 (ד׳ בכסלו, תשע״ט), בניין דן קאהן, אודיטוריום 1, 14:30.

מרצה: שחר טרסר

מנחה: פרופ׳ יצחק בוכר

על הנושא:

Balancing Flexible Rotors at Low Speed Using Parametric Excitation

The seminar will be given in Hebrew

תקציר ההרצאה :

High-speed machinery (rotors) is often designed to pass several “critical speeds”, where vibration levels can be very high. To reduce vibrations, rotors undergo a mass balancing process, where the machine is rotated at its full speed range, during which the dynamic response near critical speeds, where the sensitivity is high, can be measured.

The requirement to rotate the machine at high speeds is an obstacle in many cases, where it is impossible to perform measurements at high speeds, due to harsh conditions such as high temperatures and inaccessibility (e.g., jet engines).

This research proposes a novel balancing method of flexible rotors, which does not require the machine to be rotated at high speeds. With this method, the rotor is spun at low speeds, while subjecting it to a set of tuned externally controlled forces, combining a dual frequency parametric excitation and nonlinear stiffness.

These forces warrant sufficient sensitivity required to detect the projection of the imbalance on any desired mode without rotating the machine at high speeds. Analytical, numerical and experimental results are shown to validate and demonstrate the method.

בברכה,

פרופ״מ מתיו סאס
מרכז הסמינרים