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 ד׳ 10.01.2018 (כ״ג בטבת, תשע״ח), בניין דן-קאהן, אודיטוריום 1 , 13:30.

מרצה: אלכס פרדינסקויף

מנחה: פרופ׳ יצחק בוכר

על הנושא:

פלטפורמה מעבדתית לחיזוי, ניסוי וחקר תכונות דינמיות של מערכות סובבות

A Laboratory Platform for Dynamic investigation, Simulation and Validation of High-Speed Rotors

The seminar will be given in Hebrew

להלן תקציר ההרצאה:

In the conceptual design phase of a rotating machine, the rotor safety and edesign-critical parameters are determined according to the machine's operational requirements. This research introduces a comprehensive simulation, validation and design-assisting laboratory-testing environment. It aims to pinpoint the causes for gaps between the finite element model and experimental system measurements and provide a platform for practical validation of design modifications. As a part of the research, a laboratory simulator was designed and manufactured, allowing generating a wide range of dynamic loads while the system rotates at high rotation speed, to examine the difference between the anticipated and observed dynamical parameters.

The test-system developed within this research allows controlling the supports' stiffness, the rotation speed and acceleration profile. It enables to vary the dynamic behavior of the rotor, isolate the system modes of vibration and identify the parameters causing the deviation from the finite element model. As part of the experimental system, a closed-loop, active damping system was developed to enhance the damping of critical speeds. To conduct a comparison between experiment and model, some specific signal-processing techniques are shown, allowing it to isolate the relevant, speed and condition dependent, dynamical components.

The seminar will describe the motivation behind this work, the test and experimental rig design, capabilities, and detailed experimental results with emphasize on hidden features no visible in Finite element models.

בברכה,

פרופ״א מתי סאס
מרכז הסמינרים