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 ה׳ 8.03.2018 (כ״א באדר, תשע״ח), בניין דן קאהן, אודיטוריום 1, 13:30.

מרצה: דביר בלומר

מנחה: פרופ׳ דניאל ריטל

על הנושא:

The influence of microstructure on the static and dynamic strength of transparent Magnesium Aluminate Spinel (MgAl2O4)

The seminar will be given in Hebrew

להלן תקציר ההרצאה:

Magnesium Aluminate Spinel (MgAl2O4) transparent polycrystalline ceramic has a unique combination of properties, which makes it a promising candidate for demanding commercial and defense applications. For example, merging Spinel layer within a ballistic window composition brings about to a reduction of up to 50% in the window weight and volume, while keeping the same ballistic protection.

Despite the broad agreement on the important role of material strength on the ballistic behavior of materials, data on dynamic strength, especially dynamic tensile/flexural strength, is still very scarce. Moreover, a well-defined correlation between the grain-size and dynamic tensile/flexural strength needs additional work.

A standard 3-point-bending method was used to measure the static flexural strength, while a hybrid experimental-numerical 1-point impact method was used to measure the dynamic flexural strength, together with extensive use of ultra-high-speed imaging.

A comprehensive study on the influence of grain size on both quasi-static and dynamic flexural strength will be presented. In addition, a systematic comparison of two methods to determine fracture time, namely fracture gauges and ultra-high-speed imaging, will be displayed. The effect of these methods on the value of the dynamic tensile (flexural) strength and rate sensitivity determination will be discussed.

בברכה,

פרופ״א מתי סאס
מרכז הסמינרים