

הנך מוזמן/ת להרצאה סמינריונית של הפקולטה להנדסת מכונות במסגרת הדוקטורט, שתתקיים ביום ב' 27.11.2017 (ט' בכסלו, תשע"ח), בניין דן-קאהן, אודיטוריום 1, 14:30.

**מרצה:** ארנון פארן

**מנחה:** ד"ר לאוניד טרטקובסקי

**על הנושא:**

## Engine Waste Heat Recovery through High-Pressure Methanol Steam Reforming

The seminar will be given in English

**להלן תקציר ההרצאה:**

Internal combustion engines are major contributors to the global emissions and are also responsible for a substantial part of the world's oil consumption. Two ways of mitigating these problems are increasing the engines' efficiency and using low carbon intensity alternative fuels. The presented research applies both of these strategies. The efficiency increase and pollutants emission reduction is achieved through waste heat recovery with onboard production and subsequent burning of hydrogen-rich gaseous reformat. To describe the thermodynamic and kinetic processes in a complex multifunctional system including an internal combustion engine and a chemical reactor, a unique model was developed and applied. After showing the system feasibility and advantages in the simulation, an experimental setup of direct-injection engine with high-pressure thermochemical recuperation of waste heat was developed and extensively investigated. The obtained experimental results show that the developed innovative approach allows a 30% increase in indicated efficiency and reduction of 81%, 92%, 96% and 12% in NO<sub>x</sub>, CO, HC and CO<sub>2</sub> emissions, respectively compared to the baseline gasoline-fed engine.

בברכה,

ד"ר איתי סאס  
מרכז הסמינרים