

סמינריון

הנדך מוזמנות/ת להרצאה סמינריונית של הפקולטה להנדסת מכונות, שתתקיים ביום ד' 10.10.2018 (א' בחשוון, תשע"ט), בניין דן קאהן, אודיטוריום 1, 13:30.

מרצה: איליה חנין

מנחה: ד"ר לאוניד טרטקובסקי

על הנושא:

Performance and nanoparticle emissions of a diesel engine fed with dimethyl-ether

The seminar will be given in Hebrew

תקציר ההרצאה:

Dimethyl-Ether (DME) is an alternative renewable fuel and has a great potential to be a substitute of a conventional diesel fuel. DME can be easily liquefied and stored onboard. It has similar properties of storage and handling as liquefied petroleum gas (LPG).

A vast research was conducted on DME as a substitute for diesel fuel in diesel engines. However, information on impact of DME and its blends with diesel fuel on emission of nanoparticles is still fragmentary.

The purpose of this research is to study the environmental and performance implications of diesel engine feeding with DME in various blends with a conventional diesel fuel (in different weight concentration ratios), and make a comparative analysis with the baseline case of diesel fuel.

The experimental study shows that total concentration of the nanoparticles in exhaust gas is decreased drastically with the increase of DME content in the fuel blend. For example, at 75% engine load and 3,000 [rpm], total concentrations of nanoparticles decreased by 42%, 48% and 68% for DME-20 (20% DME in the blend with diesel fuel), DME-30 and DME-40, respectively in comparison to conventional diesel fuel (DME-00). The nanoparticle total mass concentration is decreased dramatically by 76%, 83% and 93% at the same engine operating mode for DME-20, DME-30 and DME-40, respectively in comparison to diesel fuel.

The study shows that NO_x emissions of a laboratory diesel engine were drastically reduced with the increase of DME fraction in a fuel blend.

בברכה,

ד"ר איליה חנין

מרכז הסמינרים