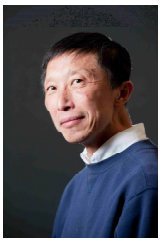
הטכניון – מכון טכנולוגי לישראל
הפקולטה להנדסת מכונות

TECHNION – Israel Institute of Technology
Faculty of Mechanical Engineering

SEMINAR - סמינר

הנך מוזמן/ת להרצאה סמינריונית של הפקולטה להנדסת מכונות, שתתקיים ביום ב' 18.05.15 (כט' באייר, תשע"ה), בבניין דן-קאהן, קומה 0, אודיטוריום 1, שעה 14:30.



יצרה:

Professor Wai Cheng
Director, Sloan Automotive Lab, MIT

על הנושא:

On DISI engine particulate matter formation at cold-fast-idle

להלן תקציר ההרצאה:

Particulate matter (PM) emissions, both in mass and in number density, are of concern in direct injection spark ignition (DISI) engines. The issue is particularly severe in cold start. This talk addresses two topics. (a) The role played by the interaction between the charge motion and the fuel film on the wall, and (b) a conceptual model for the PM formation. Very low PN emissions were observed when injection took place in the mid intake stroke because of the fast fuel evaporation and mixing processes facilitated by the high turbulent kinetic energy of the intake charge created flow. Liquid fuel film formation on the combustion chamber surfaces was avoided. PN emissions increased when injection took place in the compression stroke, and increased substantially when the fuel spray hit the piston. A conceptual model was established for the PM formation process. Normal premixed flame passage is arrested at the flammability boundary of the fuel rich plumes originating from the liquid films. PM is formed by pyrolysis which is supported by the heat conducted from the hot burned gases outside the plume and by the energy released from the substantially fuel rich oxidation. Thus, the "pool fire" often observed is not a diffusion flame since the small amount of residual oxygen in the burned gases cannot support such a flame. The luminosity is radiation from the hot soot particles which are not oxidized after being formed in the pyrolysis reactions.

המארח : ד"ר לאוניד טרטקובסקי

בברכה,

שרון אמיר
מרכז הסמינרים