

סמינריון

הנדך מוזמנת/ת להרצאה סמינריונית של הפקולטה להנדסת מכונות שתתקיים ביום ה' 20.01.21

(ח' בשבט, תשפ"א), בשעה 14:30 באמצעות הזום :

<https://technion.zoom.us/j/99018507612>

מרצה : אור אבני

מנחה : פרופ' ערן שר ופרופ' עזרא אליאס

על הנושא :

A theoretical study of Homogeneous Nucleation in Metastable Real Liquid During Intense Boiling

The seminar will be given in Hebrew

תקציר ההרצאה :

The limits for the onset of sudden homogeneous nucleation in liquids containing heterogeneous impurities was investigated. The relevant processes, which include the constant isobaric heating, nuclei formation, heat absorption by the liquid and heat consumed for evaporation have been analyzed using classical nucleation theory, predictions for bubble growth in a superheated liquid and simple thermodynamic relations. Special attention is drawn to the transition between two boiling regimes, and a clear distinction between them is derived when accounting for the vapor formation around the heterogeneous centers. An analytic criterion for the onset of homogeneous nucleation in water is proposed, based upon measurable heterogeneous boiling on ready nucleation centers. Numerous results are presented for water at atmospheric pressure, demonstrating the effect of variable heating rates and the level of liquid heterogeneity on the boiling process. Correlations for the critical heating rates and nucleation fluxes are developed, quantifying the influence of the heterogeneity of the system on the maximum attainable superheat and critical nucleation flux for the inception of massive nucleation. The present work thus proposes a grounded and simple-to-use for the prediction of homogeneous nucleation in non-ideal real liquid.

בברכה,

פרופ' אורי אבני

מרכז הסמינרים