



SEMINAR - סמינר

הנך מוזמן/ת להרצאה סמינריונית של הפקולטה להנדסת מכונות, שתתקיים ביום ה' 25.06.15 (ח' בתמוז, תשע"ה), בבניין דן-קאהן, קומה 0, אודיטוריום 1, שעה 13:30.

ירצה:

Prof. Graeme W. Milton
University of Utah

על הנושא:

Mechanical Metamaterials

להלן תקציר ההרצאה:

Composite materials can have properties unlike any found in nature, and in this case they are known as metamaterials. Materials with negative Poisson's ratio or negative refractive index are now classic examples. The effective mass density, which governs the propagation of elastic waves in a metamaterial can be anisotropic, negative, or even complex. Even the eigenvectors of the effective mass density tensor can vary with frequency. We show that metamaterials can exhibit a "Willis type behavior" which generalizes continuum elastodynamics. Non-linear metamaterials are also interesting and a basic question is what non-linear behaviors can one get in periodic materials constructed from rigid bars and pivots? It turns out that the range is enormous. Materials for which the only easy mode of macroscopic deformation is an affine deformation, can be classed as unimode, bimode, trimode ..., hexamode, according to the number of easy modes of deformation. We give a complete characterization of possible behaviors of nonlinear unimode materials.

Short bio:

Professor Milton is one of the seminal contributors to the field of bounds and homogenization of solid composites and cross property correlations, more recently worked on cloaking in elasticity and electromagnetism. He has published over 150 peer-review papers, and is the author of the book "The theory of composites". He is the recipient of several awards, including the 2003 Ralph E. Kleinman Prize from the Society for Industrial and Applied Mathematics for his contributions in bridging mathematics and applications, and the 2007 Prager Medal from the Society of Engineering Science for his work on solid mechanics.

בברכה,

המארח: פרופ"מ גל שמואל

פרופ' נא אמיני

מרכז הסמינרים