

## סמינריון

הנך מוזמנת להרצאה סמינריונית של הפקולטה להנדסת מכונות, שתתקיים ביום ד' 26.10.16  
(כד' בתשרי, תשע"ז), בבניין דן-קאהן, קומה 0, אודיטוריום 1, 13:30.

ירצה: אור גרינברג

מנחה: פרופ' אלי אלטוס

על הנושא:

# Stress-Moduli Monotonicity and Optimized Material Morphology

The seminar will be given in Hebrew

## להלן תקציר ההרצאה:

Design of material morphology for improved mechanical properties has a great potential and is in its' infancy.

It was found in previous work (Krush's MSC 2013), that a reaction force  $R$  of an indeterminate beam is monotonic with local moduli. Therefore, the extremal  $R$  is related to a special non-continuous moduli field, which reduces the difficulty of finding the ( $R_{\text{external}}$ ) morphology.

$R_{\text{max}}$  is strongly related to structural strength. Therefore, the target of this study is to exploit the monotonicity property in order to design improved morphologies. The analysis is generalized in three directions:

- Beams with multiple supports
- Internal forces in truss structures
- General elastic body with concentrated boundary forces.

The morphologies found by using the monotonicity were verified for two examples by a numerical optimization algorithm (MMA).

Current study is focused on finding morphologies which minimize the maximum internal force. Distributed boundary stresses will also be examined.

בברכה,

פרופ' נא אמיץ

מרכז הסמינרים