

הנך מוזמן/ת להרצאה סמינריונית של הפקולטה להנדסת מכונות, שתתקיים ביום ה' 27.07.17
(ד' באב, תשע"ז), בניין דן-קאהן, אודיטוריום 1, 13:30.

ירצה: ראוף קורבי

מנחה: פרופ' דניאל ריטל
מנחה שותף: דר' אברהם דורוגוי

על הנושא:

Numerical modeling of dental implant-bone interface

The seminar will be given in English

להלן תקציר ההרצאה:

Dental implants interact with the jawbone through their common interface. While the implant is an inert structure, the jawbone is a living one that reacts to mechanical stimuli. Setting aside mechanical failure considerations of the implant, the bone is the main component to be addressed. With most failure criteria being expressed in terms of stress or strain values, their fulfillment can mean structural flow or fracture. However, in addition to those effects, the bony structure is likely to react biologically to the applied loads by dissolution or remodeling, so that additional (strain-based) criteria must be taken into account. Moreover, stress shielding considerations suggest that the dental implant material's compliance should be matched to that of the host bone. However, this belief has not been confirmed from a general perspective, either clinically or numerically.

While the literature abounds in studies of particular loading configurations, e.g. angle and value of the applied load to the implant, a general study of the admissible implant loads is still missing.

This work introduces the concept of failure envelopes for the dental implant-jawbone system, thereby defining admissible combinations of vertical and lateral loads for various failure criteria of the jawbone.

This failure envelope concept was then used to characterize the influence of the implant material's stiffness on its functionality, with stiffness ranging from very low (polymer) to extremely high, through that of bone, titanium and ceramics.

The results of this research invalidate the current paradigm about stress shielding in dental implants.

בברכה,

פרופ' אהוד אלוזובסקי
מרכז הסמינרים