SEMINAR - סמינר

הנך מוזמן/ת להרצאה סמינריונית של הפקולטה להנדסת מכונות, שתתקיים ביום ב' 20.05.2019 (ט"ו באייר תשע"ט), בניין דן קאהן, אודיטוריום 1, 14:30.

מרצה:

Professor Martin Kroon
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Linnaeus University, Växjö, Sweden

על הנושא:

Some issues in fracture mechanics of rubber-like and soft materials

The seminar will be given in English

להלן תקציר ההרצאה:

Rubber and rubber-like materials are used in a wide range of industrial applications, such as tires, seals, conveyor belts, base isolations of buildings, bridge bearings, etc. To attain appropriate designs of rubber components and similar materials under different types of mechanical loading, it is important to understand the mechanical behavior of the material, including the fracture mechanics properties.

Natural rubber (polyisoprene) is an example of a polymer that undergoes strain-induced crystallization. Strain-induced crystallization has a significant impact on both constitutive behavior and fracture mechanics properties. Formed crystallites act as natural reinforcers, which enhance the resistance to fracture and failure. Under dynamic crack growth, the main part of the fracture resistance comes from viscoelasticity in the bulk of the material surrounding the crack tip, and only a minor portion may be attributed to the surface energy at the crack tip.

In the present talk, constitutive modeling of strain-crystallizing rubber and dynamic crack growth in rubber is addressed. The outcome from the analyses is assessed by use of experimental results. Modeling of steady-state dynamic crack growth in rubber is also addressed, where focus is put on the contribution of bulk viscoelasticity to the dynamic fracture toughness. The singular stress fields arising at the propagating crack tip are also discussed..

מארח: פרופ' מיילס רובין

בברכה,

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