ΠΑΝΕΠΙΣΤΗΜΙΟ ΚΡΗΤΗΣ

ΤΜΗΜΑ ΕΠΙΣΤΗΜΗΣ & ΤΕΧΝΟΛΟΓΙΑΣ ΥΛΙΚΩΝ

UNIVERSITY OF CRETE

DEPARTMENT OF MATERIALS SCIENCE & TECHNOLOGY

ΠΡΟΣ
1) Όλα τα μέλη ΔΕΠ του Τμήματος Επιστήμης και Τεχνολογίας Υλικών
2) Τους εκπροσώπους των Μεταπτυχιακών φοιτητών του Τ.Ε.ΤΥ
3) Την Επταμελή Εξεταστική Επιτροπή
4) Όλα τα μέλη της Πανεπιστημιακής Κοινότητας

Πρόσκληση σε Δημόσια Παρουσίαση της Διδακτορικής Διατριβής της

κ. Dessi Claudia

(Σύμφωνα με το άρθρο 12 του Ν. 2083/92)

Την Παρασκευή 15 Ιανουαρίου 2016 και ώρα 10:00

στην αίθουσα Ε130 στο κτίριο του Τμήματος Μαθηματικών και Εφαρμοσμένων Μαθηματικών

θα γίνει η δημόσια παρουσίαση και υποστήριξη της Διδακτορικής Διατριβής της υποψήφιας διδάκτορα του Τμήματος Επιστήμης και Τεχνολογίας Υλικών

κ. Dessi Claudia με θέμα:

«Linear and Non-linear Rheology of Heterogeneous Polymeric Systems:

From Entangled Polymeric Networks and Elastomers to Nanocomposites»

ABSTRACT

The reason why industrial polymers have got such great attention in many different scientific and technological applications is the existence of an intimate relationship between their molecular structure and rheological properties with final processing and mechanical properties. As a result, industrial standard methods were intensively developed, such as dynamic torsion measurements. However, we clearly show large departures of the dynamic mechanical response in torsion. This observation made necessary to establish a better guideline that allows more reliable torsion dynamic mechanical measurements in industrial standard protocols. It is well-known that the addition of fillers into a polymer matrix generates mechanical reinforcement. However, the reinforcement mechanism still remains in

debate. More specifically, the role of the presence of a bound polymer layer on particle surface is not completely addressed. Hence, we focused on improving the understanding of polymer-particle flow dynamics in nano-filled model polymers for which the presence of bound polymer layers was not always possible to assess. Finally, network polymer systems are able to be deformed to large amplitude deformations without losing their macroscopical shape. Often large deformations are oscillatory. Despite mechanical properties in large deformations of polymer network have been investigated for long, addressing a proper physical model description remains a challenge. We developed a new model that for the first time can describe, at least qualitatively and partially quantitatively, the experimental asymmetric hysteresis response of filled industrial rubbers subjected to large amplitude oscillatory deformations in uniaxial extension superimposed to a steady one.