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 του

κ. Μαράκη Ιωάννη

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

Την Τρίτη 19 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 του υποψήφιου διδάκτορα του Τμήματος Επιστήμης και Τεχνολογίας Υλικών

κ. Μαράκη Ιωάννη με θέμα:

«Metastability Transitions in Colloidal Supramolecular Systems of Varying Softness and Shape»

ABSTRACT

The main scope of this work is to enlighten the rheological and the structural state transitions of soft systems in respect to the molecules softness, shape and size. There is a wide range of the rheological states explored, extending from liquid-like to gel, glass, double glass structures. We focus on kinetic transitions, induced by shear and thermodynamic (depletion) forces, and discuss properties of star glasses and gels. All the systems investigated in this work are metastable and exhibit structural rearrangements upon the variation of systematic parameter such as concentration, temperature, depletion, etc.

A large part of this study is based on experimental work with the use of star polymers, a model system for studying soft matter. We investigate the effects of an external shear field on pure star system. Metastable transitions between kinetically arrested and ordered-disordered states were observed and studied in

Τ.Θ. 2208, 710 03 Ηράκλειο, Κρήτη
Τηλ.: 2810394270 & 72 Γραμματεία Φοιτητών
2810-394271 Γραμματεία Τμήματος
Fax: +30-2810-394273

P.O. Box 2208, GR-710 03, Heraklion, Crete, GREECE
Tel: +302810394270 & 72 Students' Secretariat
+30-2810-394271 Dept. Secretariat
e-mail: secretariat@materials.uoc.gr

order to illuminate the course of a soft system towards the final equilibrium state. Moreover, we try to enlighten the natural way of creating large supramolecular structures. Based on the hydro-preference and molecular partial ordering, the system can become pH, thermo and shear responsive. Such systems display strong concentration dependence forming stable networks due to different molecular interactions. Furthermore, we studied more complicated systems i.e. mixtures of soft stars and hard colloids. The shape, size and concentration of each component affect the rhelogical state of the system, driving it to many metastable states, just by varying these parameters. Our strong belief is that this work will provide a solid background to illustrate colloidal phase behavior comprising the metastable state and metastability.