

**Πρόσκληση σε Δημόσια Παρουσίαση της Διδακτορικής Διατριβής της
κ. Χριστίνας Πυρομάλη**

(Σύμφωνα με το άρθρο 41 του Ν. 4485/2017)

Την **Τρίτη 03 Μαΐου 2022** και ώρα **15:00** στην **αίθουσα Τηλε-εκπαίδευσης E130**, στο κτήριο του **Τμήματος Μαθηματικών και Εφαρμοσμένων Μαθηματικών** του Πανεπιστημίου Κρήτης, θα γίνει η δημόσια παρουσίαση και υποστήριξη της Διδακτορικής Διατριβής της υποψήφιας διδάκτορος του Τμήματος Επιστήμης και Τεχνολογίας Υλικών κ. Χριστίνας Πυρομάλη με θέμα:

**«Ρεολογία και Θραύση Δυναμικών Πολυμερικών Δικτύων»
«Rheology and Fracture of Dynamic Polymeric Networks»**

Abstract

In this dissertation we investigate experimentally the linear dynamics and nonlinear shear response of macromolecular networks with ultimate aim to understand the conditions for reinforcement, yielding and flow due to the combined constraints of topology and attractive interactions, and eventually come up with design criteria for materials with improved properties. We study established and novel model polymeric materials, by utilizing linear oscillatory and nonlinear steady shear rheology, creep and TMA tube-based modeling in order to understand how architecture, topology, physical and chemical crosslinks influence the performance of networks. The presented work is divided into three main sections. The first discusses the relaxation mechanisms of simple topologically constrained entangled homopolymers with emphasis on stress relaxation upon cessation of steady shear flow. The second and third sections focus on the development of multi-responsive polymeric networks containing at least two distinct dynamic modes. In particular, the second part investigates the role of the macromolecular architecture and the number of physical bonds on the rheological properties of metal-ligand supramolecular networks. The last part addresses the effects of nanofiller internal microstructure, size and volume fraction on network reinforcement containing single chain nanoparticles.