Ηράκλειο 21/02/2022

Η ΠΑΡΟΥΣΙΑΣΗ ΔΙΠΛΩΜΑΤΙΚΗΣ ΕΡΓΑΣΙΑΣ

Του φοιτητή **Γεωργίου Φραγκιαδάκη,** θα γίνει την

<u>Παρασκευή 25/02/2022</u> και ώρα **16:00**

στην Α2 του Κτηρίου Επιστήμης Υπολογιστών

Θέμα Διπλωματικής:

«Rheology of polystyrene melts with various molecular weight distributions»

Επιβλέπων: Δημήτριος Βλασσόπουλος

Για την παρακολούθηση της παρουσίασης δια ζώσης, το κοινό θα πρέπει να έχει τα απαραίτητα δικαιολογητικά (πιστοποιητικό εμβολιασμού, νόσησης ή rapid test).

Abstract:

In this thesis we examined the linear and nonlinear rheological properties of linear polymers with different molar mass and molar mass distribution. The polymer of choice was polystyrene, a well-known thermoplastic with a wide range of applications. The samples used have molar masses ranging from 3 to 70 kg/mol, and reasonably narrow molar mass distribution (MMD), below 2. By mixing different polymers we obtained blends of different average MMD (up to 5.3). We focused on the role of MMD for the same or different average molar mass, which affects the viscoelastic response significantly. We described the linear viscoelasticity with the tube model, accounting for the dynamic solvent contribution of the small components in the blends via double reptation, and presented scaling analysis for the nonlinear shear properties based on the characteristics of

the transient signals as function of the Weissenberg number for the different samples. Our results point to the importance of the shape of MMD on the rheological properties of polymers.