



## ΙΔΡΥΜΑ ΤΕΧΝΟΛΟΓΙΑΣ ΚΑΙ ΕΡΕΥΝΑΣ

ΕΡΕΥΝΗΤΙΚΟ ΙΝΣΤΙΤΟΥΤΟ ΧΗΜΙΚΗΣ ΜΗΧΑΝΙΚΗΣ  
ΚΑΙ ΧΗΜΙΚΩΝ ΔΙΕΡΓΑΣΙΩΝ ΥΨΗΛΗΣ ΘΕΡΜΟΚΡΑΣΙΑΣ

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### ΣΕΜΙΝΑΡΙΟ

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**ΘΕΜΑ:** **Getting the most out of carbon nanotubes**

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#### ΠΕΡΙΛΗΨΗ

Carbon nanotube (CNTs) based composites have attracted a great deal of interest in the scientific community over the last 10 years. However, in terms of mechanical property enhancement the results so far have been fairly disappointing. Here, homogeneous oriented nanocomposite polymer tapes containing three different types of carbon nanotubes were produced and their mechanical properties were investigated. While all nanotubes contributed to property improvement, tapes containing single-walled nanotubes (SWNTs) showed significant improvement of Young's modulus and ultimate tensile strength. Calculations using the rule of mixture showed that their theoretical strength and stiffness had been well exploited in the nanocomposite tapes. Finally, the application of CNTs in conductive fibres and sensor materials will be presented.