

ΠΑΝΕΠΙΣΤΗΜΙΟ ΚΡΗΤΗΣ  
ΤΜΗΜΑ ΕΠΙΣΤΗΜΗΣ ΚΑΙ ΤΕΧΝΟΛΟΓΙΑΣ ΥΛΙΚΩΝ

Πρόσκληση σε Δημόσια Παρουσίαση της Διδακτορικής Διατριβής της  
κ. Μαριλένας Μοσχογιαννάκη

(Σύμφωνα με το άρθρο 95, παρ. 3 του Ν. 4957/2022, ΦΕΚ 141 τ. Α'/21.7.2022)

Την Πέμπτη 27 Οκτωβρίου 2022 και ώρα 09:00 στην αίθουσα Α210 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. Μαριλένας Μοσχογιαννάκη, με θέμα:

**«Printable Gas Sensors based on Transition Metal Vanadate Nanostructures»**

**Abstract**

Environmental monitoring has been one of the top priorities of European and global sectors, since it is strongly linked with climate change, environmental pollution and human health and safety. Recently, research interest is being focused on the development of flexible, reliable and stable gas sensors, based on advanced ternary metal oxides with unique structural, electronic and chemical properties. In this dissertation, focus was given on the low-cost synthesis, deep characterization and environmental applications of the advanced ternary and quaternary Transition Metal Vanadates (TMVs) as gas sensors. The materials had formula of  $M_xV_2O_{5+x}$ ,  $M=$  Co (cobalt), Ni (nickel), Co-Ni (cobalt-nickel) and Zn (zinc) and  $x=1-3$ . The most promising materials (Cobalt Vanadate polymorphs) were characterized explicitly and plausible gas sensing mechanisms are proposed based on operando Diffused Reflectance Infrared Fourier Transformed technique (DRIFTS) and operando Kelvin Probe, finding the exact gas reactions taken place on sensors' surface and their band structure model. Therefore, finding an effective way for gas monitoring is undoubtedly of high priority in the field of environmental and health protection.