ΦΥΣΙΚΗ & ΤΕΧΝΟΛΟΓΙΑ ΥΛΙΚΩΝ
ΠΡΟΓΡΑΜΜΑ ΜΕΤΑΠΤΥΧΙΑΚΩΝ ΣΠΟΥΔΩΝ

ΤΜΗΜΑ ΦΥΣΙΚΗΣ
ΑΡΙΣΤΟΤΕΛΕΙΟ ΠΑΝΕΠΙΣΤΗΜΙΟ ΘΕΣΣΑΛΟΝΙΚΗΣ

The promise of Spintronics

Σ Ε Μ Ι Ν Α Ρ Ι Ο

Δευτέρα 24.04.2023 στις 12:00

Αίθουσα Διδασκαλίας 2.6

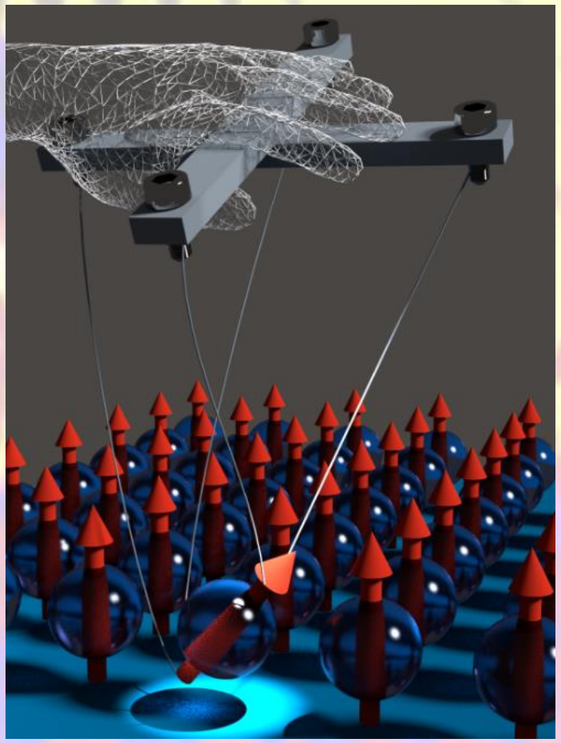
Γυάλινο κτήριο 2ος όροφος

Ευάγγελος Θ. Παπαϊωάννου

Επίκουρος Καθηγητής

Τμήμα Φυσικής

Αριστοτέλειο Πανεπιστήμιο Θεσσαλονίκης



Περίληψη: The importance of magnetic materials in our everyday life is valuable beyond estimation. Magnetic materials in ultrathin form define the field of spintronics that deals with electron-carried spin currents. Spintronics has already provided crucial components found in many fields of applications like for example information technology, robotics and automatization, sensors and actuators.

In this talk, I will give an overview of the recent advances in different sub-disciplines of spintronics and present the future perspectives of the field. We will discuss how spins can act as mediators to interconvert electricity, light, sound, vibration and heat. After introducing spin-mediated conversion phenomena like direct and inverse spin Hall effects, spin Seebeck effect, I will discuss the properties of spin-conversion in terms of magneto-electric, optical, thermal and mechanical spin conversions.

Finally, we will survey the results of recent experimental development in ultrafast spintronics and femtomagnetism that offer us a fascinating opportunity for studying, controlling, and using spintronics phenomena on the femto- second timescale.

Το σεμινάριο θα μεταδοθεί και σε live-streaming μέσω ZOOM https://authgr.zoom.us/j/93328530744