



Advanced Solid-State Materials and Nanostructures

(METY- 501)

Writing Projects:

1. Metal chalcogenide photocatalysts for CO₂ reduction
2. Perovskite oxide electrocatalysts for oxygen evolution reaction
3. Inorganic photonic band gap materials
4. Fabricating nanoelectrodes for electrochemical sensing
5. Nanoscale patterning with scanning probe microscopes (STM, AFM)
6. Self-assembly of 3D nanocrystal superlattices
7. Nanostructured thermoelectric materials
8. Carbon nanotubes: Synthesis and applications
9. Coordination polymers (MOFs, COFs, ZIFs) for catalysis
10. Multifunctional nanorods for biomedical applications
11. Nanostructured metal-oxide materials as cathode catalysts for lithium-air batteries
12. Raman Spectroscopy in Graphene and TMDs
13. Strain engineering in semiconducting 2D TMDs
14. Excitonic complexes in TMD monolayers
15. Spin-valley polarization and intervalley scattering in TMDs
16. 2D van der Waals Heterostructures: Interlayer Excitons
17. Second Harmonic Generation (SHG) in 2D crystals



18. Chemical Vapor Sensing in TMDs
19. Tip Enhanced Raman Spectroscopy – Principles and Applications
20. Transparent conducting materials in optical and electronic devices
21. Hard radiation detection from semiconductors
22. Electroluminescence in semiconductor light-emitting diodes
23. Thin-film solar cells from emerging semiconductors
24. Ferroelectric applications of polar ceramic materials
25. Crystal growth of technologically relevant semiconductors
26. Epitaxially-grown quantum well nanostructures
27. Solid electrolytes in fuel cells
28. Metal-organic frameworks for gas separation applications
29. Dielectric materials for frequency tuning in microwave circuits
30. Transition metal-based superconductors

Οι ακόλουθοι παράμετροι θα πρέπει να ληφθούν υπόψη:

Διάταξη σελίδας	Γραμματοσειρά	Μέγεθος γραμματοσειράς	Μέγεθος κειμένου	Διάστιχο	Περιθώρια
A4	Times New Roman	12	~4000 words	1.5 lines	2 cm side 1,5 bottom

Παρουσίαση εργασιών:

Διαθέσιμος Χρόνος	Τυπικός Αρ. διαφανειών	Format
20 min	15	PowerPoint