



Advanced Solid-State Materials and Nanostructures

(METY- 501)

Writing Projects:

1. Metal chalcogenide photocatalysts for CO₂ reduction
2. Electrocatalytic Ammonia Production from Nitrogen
3. Perovskite oxide electrocatalysts for oxygen evolution reaction
4. Inorganic photonic band gap materials
5. Fabricating nanoelectrodes for electrochemical sensing
6. Nanoscale patterning with scanning probe microscopes (STM, AFM)
7. Self-assembly of 3D nanocrystal superlattices
8. Nanostructured thermoelectric materials
9. Carbon nanotubes: Synthesis and applications
10. Coordination polymers (MOFs, COFs, ZIFs) for catalysis
11. Multifunctional nanorods for biomedical applications
12. Nanostructured metal-oxide materials as cathode catalysts for lithium-air batteries
13. Raman Spectroscopy in Graphene and TMDs (Transition Metal Dichalcogenides)
14. Strain engineering in 2D (two-dimensional) materials
15. Photochemical Doping in 2D Materials – controlling their optoelectronic properties
16. Excitonic complexes in TMD - monolayers
17. 2D van der Waals Heterostructures: Interlayer Excitons



18. Second Harmonic Generation (SHG) in 2D crystals
19. Chemical Vapor Sensing in TMDs
20. Tip Enhanced Raman Spectroscopy – Principles and Applications
21. Transparent conducting materials in optical and electronic devices
22. Hard radiation detection from semiconductors
23. Electroluminescence in semiconductor light-emitting diodes
24. Thin-film solar cells from emerging semiconductors
25. Ferroelectric applications of polar ceramic materials
26. Crystal growth of technologically relevant semiconductors
27. Epitaxially-grown quantum well nanostructures
28. Solid electrolytes in fuel cells
29. Metal-organic frameworks for gas separation applications
30. Dielectric materials for frequency tuning in microwave circuits
31. 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