

Conducător doctorat: Prof. dr. Simona Pînzaru

Nr. locuri la doctorat: 1

Loc 1/1 - bugetat cu bursă, domenii prioritare (sesiunea iulie)

Membrii comisiei de admitere:

1. Prof. dr. Simona Pînzaru
2. Prof. dr. Vasile Chiș
3. Prof. dr. Nicolae Leopold

Tematica pentru examen:

1. SERS theory and its application; Applied SERS in environmental field
2. Emerging pollutants in aquatic environment: Identification, characterization and trace detection at nanoscale

Tematica interviu:

1. Emerging pollutants in aquatic environment: current identification and quantification using Raman and SERS techniques
2. Understanding dependencies on SERS technique with colloidal nanoparticles: dependencies on the substrate; dependencies on the analyte

Bibliografie

1. J. Langer et al, Present and Future of Surface-Enhanced Raman Scattering, ACS Nano 2020 14 (1), 28-117, DOI: 10.1021/acsnano.9b04224
 2. Yi et al, Surface-enhanced Raman spectroscopy: a half century historical perspective, Chem Soc. Review, 2024, DOI:10.1039/d4cs00883a
 3. M. Fleischmann, P.J. Hendra, A.J. McQuillan, Raman spectra of pyridine adsorbed at a silver electrode, [https://doi.org/10.1016/0009-2614\(74\)85388-1](https://doi.org/10.1016/0009-2614(74)85388-1)
 4. David L. Jeanmaire, Richard P. Van Duyne, Surface Raman Spectroelectrochemistry: Part I. Heterocyclic, aromatic, and aliphatic amines adsorbed on the anodized silver electrode, [https://doi.org/10.1016/S0022-0728\(77\)80224-6](https://doi.org/10.1016/S0022-0728(77)80224-6)
 5. Martin Moskovits, Surface-enhanced spectroscopy, <https://doi.org/10.1103/RevModPhys.57.783>
 6. Moskovits, M. (2006). Surface-Enhanced Raman Spectroscopy: a Brief Perspective. In: Kneipp, K., Moskovits, M., Kneipp, H. (eds) Surface-Enhanced Raman Scattering. Topics in Applied Physics, vol 103. Springer, Berlin, Heidelberg. https://doi.org/10.1007/3-540-33567-6_1
 7. Peng Li, Qingcun Li, Zheneng Hao, Sujuan Yu, Jingfu Liu, Analytical methods and environmental processes of nanoplastics, Journal of environmental sciences 94 (2020) 88–99, <https://doi.org/10.1016/j.jes.2020.03.057>.
 8. Navin Kumar Mogha, Dongha Shin*, Nanoplastic detection with surface enhanced Raman spectroscopy: Present and future, Trends in Analytical Chemistry 158 (2023) 116885, <https://doi.org/10.1016/j.trac.2022.116885>
 9. M. Moskovits, Surface roughness and the enhanced intensity of Raman scattering by molecules adsorbed on metals, J. Chem. Phys. 69, 4159 (1978) <http://dx.doi.org/10.1063/1.437095>
 10. M. Moskovits, Surface selection rules, J. Chem. Phys. 77, 4408 (1982); <http://dx.doi.org/10.1063/1.444442>
- Liqing Pan, Lu Wang, Yujun Song, Advances in Surface-Enhanced Raman Spectroscopy for Detection of Aquatic Environmental Pollutants, <https://doi.org/10.1002/anse.202500062>

11.Xinyu Yao Jingyi Lin, Qiang Zhou, Yingli Song, Tingting Sun, Xiaohong Qiu, Bo Cao and Yang Li, A new platform for rapid and indiscriminate detection of environmental pollutants based on surface-enhanced Raman spectroscopy, Environmental Science:Nano, Issue 9, 2023
<https://doi.org/10.1039/D3EN00461A>

Data, ora și locul examenului:

22.07.2026, ora 12.00, sala 209

Membrii comisiei de îndrumare și integritate academică

1. Prof. dr. Balint Zoltan
2. Assoc. Prof. dr. Lucian Barbu-Tudoran
3. Lect. dr. Tudor Tămaș