

Conducător doctorat: Prof. dr. Pinzaru Simona

Nr. locuri la doctorat: 1

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

Membrii comisiei de admitere:

1. Prof. Dr. Simona Pinzaru
2. Prof. Dr. Vasile Chis
3. Prof. Dr. Zoltan Balint

Tematica pentru examen:

1. SERS theory and its application; Applied SERS in environmental field
2. Micro-nanoplastic in aquatic environment: Identification, characterization and trace detection at nanoscale
3. Nanoparticles for SERS: synthesis, characterization and their use in aquatic environment;
4. The fate of AgNPs – in aquatic environment. The interface between NPs and aquatic microorganisms: SERS detection and ecotoxicology considerations.
5. Vibrational techniques to characterize AgNPs–aquatic microorganisms interface in conjunction with complementary methods.

Tematica interviu:

1. Micro-nanoplastic in aquatic environment: address 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
3. Unveiling the versatility of Raman technology for real-time kinetics of Ag aggregation in environmental relevant media

Bibliografie

1. Surface Enhanced Raman Spectroscopy: Analytical, Biophysical and Life Science Applications Editor(s):Prof. Dr. Sebastian Schlücker,2010

|DOI:10.1002/9783527632756https://www.google.ro/books/edition/Surface_Enhanced_Raman_Spectroscopy/FQ_x_en_5vAC?hl=en&gbpv=1&printsec=frontcover

2. Ding et al, **Electromagnetic theories of surface-enhanced Raman spectroscopy**, Chem. Soc. Rev., 2017,46, 4042-4076, DOI <https://doi.org/10.1039/C7CS00238F>.
3. Terry LR, Sanders S, Potoff RH, Krueel JW, Jain M, Guo H. Applications of surface-enhanced Raman spectroscopy in environmental detection. Anal Sci Adv. 2022; 3: 113–145. <https://doi.org/10.1002/ansa.202200003>
4. Molnár, C.; Drigla, T.D.; Barbu-Tudoran, L.; Bajama, I.; Curean, V.; Cîntă Pînzaru, S. Pilot SERS Monitoring Study of Two Natural Hypersaline Lake Waters from a Balneary Resort during Winter-Months Period. Biosensors 2024, 14, 19. <https://doi.org/10.3390/bios14010019>
5. Srinivasulu Aitipamula et al., Polymorphs, Salts, and Cocrystals: What's in a Name?, Cryst. Growth Des. 2012, 12, 5, 2147–2152, <https://doi.org/10.1021/cg3002948>.
6. Abdel Rahman Allan, Soumya Columbus, Roqiya Belmerabet, Muhammed Irshad, Krithikadevi Ramachandran, Kais Daoudi, Mounir Gaidi, Real-time SERS sensing of highly toxic seawater contaminants using plasmonic silver assembled pyramidal/nanowire heterostructures, Sensors and Actuators A: Physical, Volume 379, 2024, 115894, <https://doi.org/10.1016/j.sna.2024.115894>.
7. A. Kock, H.C. Glanville, A.C. Law, T. Stanton, L.J. Carter, J.C. Taylor, Emerging challenges of the impacts of pharmaceuticals on aquatic ecosystems: A diatom perspective, Science of the Total Environment 878, 2023, 162939, <http://dx.doi.org/10.1016/j.scitotenv.2023.162939>.
9. Navin Kumar Mogha, Dongha Shin, Nanoplastic detection with surface enhanced Raman spectroscopy: Present and future, TrAC Trends in Analytical Chemistry, 158, 2023, <https://doi.org/10.1016/j.trac.2022.116885>.

Data, ora și locul examenului:

17.07.2025, ora 12.00, sala Hermann Oberth