

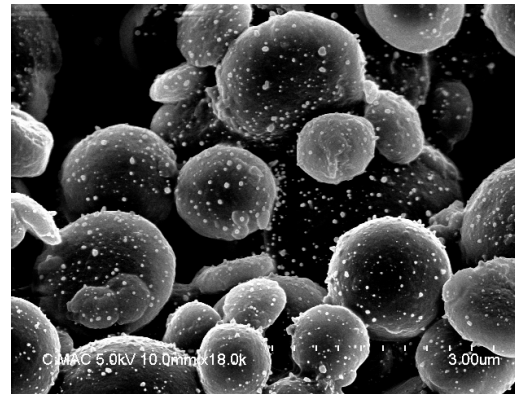
# NANOPLASTICS IDENTIFICATION: CLASSIC METHODS AND INNOVATIVE TECHNIQUES

Jacek Fiutowski, Ayoub Laghrissi, Horst-Günter Rubahn

*Mads Clausen Institute, NanoSYD, University of Southern Denmark*

e-mail of presenting author: [fiutowski@mci.sdu.dk](mailto:fiutowski@mci.sdu.dk)

Micro and nanoplastics (MNPs), originating from the prevalent usage of plastics with dimensions less than a millimetre, have become a major global environmental issue in recent decades. Scientific studies have highlighted the presence of these fragments all over the world, even in environments that were thought to be unspoiled. Sampling and analysis of micro/nanoplastics from abiotic and biotic environmental matrices has become a common motivation for developing new technological solutions. However, detecting nanoplastics imposes tremendous analytical challenges on both the nano-level sensitivity and the plastic-identifying specificity, leading to a knowledge gap in the nanoworld surrounding us. To address these challenges, we established an imaging platform aiming at automated plastic identification algorithms that allow MNPs analysis at the single-particle level with high chemical specificity and throughput.



*Fig.1 Polystyrene microplastic particles covered with Au nanoparticles as SERS tags.*

This talk will present the most recent approaches to rapid analysis of nanoplastics, utilizing nanoscale chemical imaging techniques.

## References:

1. Million Microfiber Releases: Comparing Washable and Disposable Face Masks, *Environmental Science & Technology*, 2024
2. <https://www.plasttrack.eu/>