Contribution ID: **83** Type: **Poster**

A New Method and Device Concept for Real-Time, In-Situ Evaluation of Microplastics in Water

Traditional methods for evaluating microplastics in water environments are hindered by complexity, accuracy issues, and inefficiency in processing large volumes of water within realistic timeframes and costs. This patented approach introduces a novel measurement technique—multispectral transmission evaluation using specifically prepared pulsed, coherent emission in the visible spectrum. This emission interacts with water and single plastic particles (LDPE, HDPE, and PP) of various sizes and forms as they pass through the active sensor volume. This work presents the theoretical foundation of the method, and the initial results obtained from laboratory experiments conducted in 2024.

Acknowledgements
This document was created with the financial support of the European Union –Next Generation EU, National Recovery and Resilience Plan, BG-RRP-2.012 Funding for PhD studies in the field of green and digital technologies, Contract No. BG-RRP-2.012-0003-C01, “Investigation of the influence of the shape, composition and structure of microplastics (50 micrometers - 5 mm) from PE, PP and PET on the absorption of the visible and near UV spectrum in an aquatic environment”. The sole responsibility for the content of the document lies with the Institute of Solid State Physics and under no circumstances can it be assumed that this document reflects the official position of the European Union and the Monitoring and Reporting Structure of the Bulgarian Academy of Sciences.

Primary author: VLADIMIROV, Georgi (Institute of Solid State Physics, BAS)

Co-authors: Mr FILIPOV, Dimitar (AquaLID Ltd); Dr IORDANOVA, Ekaterina (Institute of Solid State Physics, BAS); Dr YANKOV, Georgi (Institute of Solid State Physics, BAS)

Presenter: VLADIMIROV, Georgi (Institute of Solid State Physics, BAS)