Information about presenter:

Dr. Annamarija Trausa is a researcher at the Institute of Solid State Physics, University of Latvia, working in the Laboratory of Optical Materials. She received her PhD in Materials Physics in 2024, with a dissertation focused on probing the physical properties of metal and metal oxide nanowires using *in situ* electron microscopy nanomanipulation techniques. Her research background includes expertise in electron microscopy, nanomanipulations, and nanomaterial characterization, as well as experience in project management and active participation in national and international projects. Currently, Dr. Trausa is engaged as a postdoctoral researcher in the project No.1.1.1.9/LZP/2/25/201 "Next-Generation Core-Shell ZnO Tetrapod Logic Switches with Integrated 2D Materials".

Talk Title:
Next-Generation Core-Shell ZnO Tetrapod Logic Switches with Integrated 2D Materials

Abstract:
The development of low-power and mechanically adaptable electronics requires material platforms that surpass the limitations of conventional semiconductors. Hybrid systems that integrate three-dimensional semiconducting and piezoelectric structures with two-dimensional materials offer a promising pathway toward such devices. This talk will begin with a brief introduction to the Institute of Solid State Physics, University of Latvia, followed by an overview of previously performed *in situ* SEM manipulation experiments on nanostructured architectures. The second part of the talk will introduce a new postdoctoral research project launched in October 2025 in collaboration with the Mads Clausen Institute. The project explores coating ZnO tetrapods with transition metal dichalcogenides to improve charge transport, interface quality, and environmental stability, with the long-term aim of enabling novel piezotronic logic concepts.

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