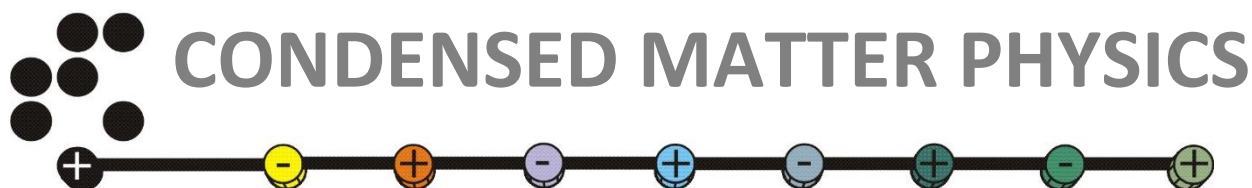


# F-5 SEMINAR



***Friday, January 27, 2023  
at 10:30 AM***

*in the seminar room of physics (room 106)  
Condensed Matter Physics, Jožef Stefan Institute*

***Aleksander Matavž, PhD***  
*Jožef Stefan Institute, Ljubljana*

## ***Nanoporous thin-film sensors for the detection of volatile organic compounds***

Detection of volatile organic compounds (VOCs) is essential in monitoring air polluting levels, food freshness, and disease diagnostics via breath analysis. The main challenge of the existing technology is the poor selectivity of sensors since they usually cannot distinguish between the target and the interfering molecule. A viable alternative are sensors based on nanoporous metal-organic frameworks (MOFs) since MOF pores have a well-defined chemical environment. Moreover, MOFs exhibit record high internal surface area that is available for specific adsorption of target molecules.

In the seminar, I will present the integration of MOFs into thin-film capacitors and their response to various volatile compounds. I will describe the fundamental properties of MOF sensors relevant for gas sensing. In the second part, I will present a novel method capable of detecting the analyte diffusion constant, which drastically improves the selectivity of the sensor.

***You are cordially invited to attend.***