



## KONWERSATORIUM INSTYTUTU FIZYKI UMCS

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### **Metal-organic interface at the nanoscale – correlating binding strength, thermal stability and charge transfer properties.**

Connecting inorganic and organic materials is mandatory for technologies supporting current development in electronics, biotechnology or new energy sources. This connection leads to the formation of an inorganic-organic interface which at the nanoscale becomes the most critical element of the device. Self-assembled monolayers (SAMs) provide simple and robust way for controlling organic-inorganic interface as indicated by this year Kavli Prize in Nanoscience. In this presentation we will focus on the contribution of the molecule-metal bonding to the structure, thermal stability and charge transfer across this interface using model systems based on thiols, selenols, carboxylic acids and carbenes. We will present an original experimental approach which we used to address this problem demonstrating for the first time the effect of positional oscillations in stability of the consecutive chemical bonds at the molecule-metal interface. As a next step we will analyze the consequence of this effect for the thermal stability of a model SAM systems. Finally, we will discuss how this effect can be related to the charge transport at the molecule-metal interface.

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Uprzejmie zapraszam wszystkich pracowników, doktorantów i studentów Instytutu Fizyki.

Prof. dr hab. Ryszard Zdyb  
Dyrektor IF UMCS