Contribution ID: **98** Type: **Oral**

Advanced scanning probe microscopy of low-dimensional molecular systems revealing exotic quantum states

Thursday 10 September 2020 10:30 (35 minutes)

Low dimensional materials offer very interesting material and physical properties due to reduced dimensionality. At present, 2D materials are the focus of attention. However, 1D systems often show far more exotic features, such as Tomanaga-Luttinger liquid, Peierls distortion, etc.. In this talk, we will present -conjugated molecular chains of distinct topological classes formed on metallic surfaces by on-surface synthesis, which physical properties were investigated by low temperature UHV scanning probe microscopy supported by theoretical analysis. We will reveal fundamental connection between topological phase transition and the level crossing driving a variation of the -conjugation of polymers [1]. The proximity of the quantum phase transition, in principle, allows us to design intrinsically conductive polymers despite of the Peierls distortion.
[1] B. Cierra et al. Nature Nanotechnology. (2020). DOI: 10.1038/s41565-020-0668-7

Author: JELÍNEK P. (Institute of Physics of Czech Academy of Sciences, Prague)

Presenter: JELÍNEK P. (Institute of Physics of Czech Academy of Sciences, Prague)

Session Classification: Parallel sessions