O 56: Overview Talk Pavel Jelinek

Time: Wednesday 9:30–10:15 Location: H24

Topical Talk O 56.1 Wed 9:30 H24

trends and perspectives in on-surfece UHV synthesis — •Pavel Jelínek — Institute of Physics of the Czech Academy of Sciences, Cukrovarnicka 10, Prague 6, Czechia

On-surface synthesis in ultra-high vacuum conditions has demonstrated the capability to synthesize molecular structures that are not available through traditional methods in solutions [1]. For example, the synthesis of radical PAH molecules on metal surfaces and their subsequent characterization with the help of UHV SPM contributed significantly to the progress in pi-magnetism [2]. In this talk, we will discuss the current status and perspectives of the field. We will also review what makes the on-surface synthesis on metallic surfaces unique concerning synthesis in solution. This includes the 2D constraint imposed by the proximity of the surface as well as the essential catalytic role of single atoms diffusing on metal surfaces [3], so-called adatoms, at elevated temperatures has been pointed out [4].

[1] S. Clair and D. G. de Otyeza Chem. Rev. 119, 4717 (2019); L. Grill et al, Nature Nano 2, 687 (2007). [2] D.G. de Otyeza and T. Frederiksen JPCM 34, 443001 (2022). [3] H. Brune, Surf. Sci. Rep. 31, 125 (1998). [4] J.I. Mendieta-Moreno et al, Angew. Chem. Int. Ed. 61 e202208010 (2022).