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Tenkých vrstev a nanostruktur

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TÉMA

Porphyrin-Based Molecular Wires and Nanorings

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Porphyrins are large redox-active π-systems, which makes them interesting components for the construction of molecular wires. Template-directed synthesis can be used to prepare porphyrin nanorings with diameters in the range 2–20 nm, such as the 12-porphyrin nanoring illustrated below (Figure 1). This talk will summarize recent work on charge transport and charge delocalization through these molecules.

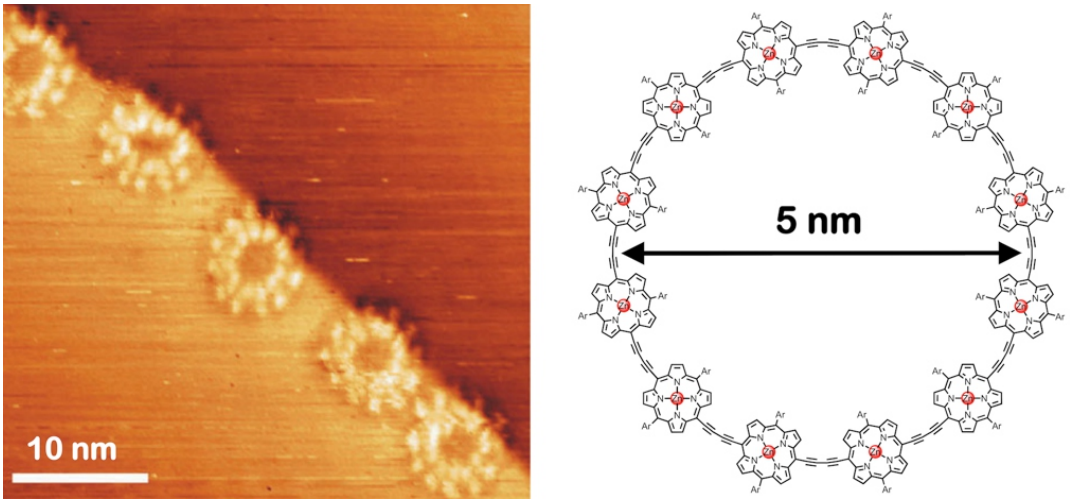

Fig. 1. STM image of a 12-porphyrin nanoring deposited on a gold surface, from ref [6].

References

[1] 'Bias-driven conductance increase with length in porphyrin tapes', E. Leary, et al. J. Am. Chem. Soc. 2018, 140, 12877–12883.

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[4] 'Supramolecular nesting of cyclic polymers', D. V. Kondratuk, et al. Nat. Chem. 2015, 7, 317-322.

[5] 'Long-range electron tunnelling in oligo-porphyrin molecular wires', G. Sedghi, et al. Nat. Nanotech. 2011, 6, 517–523.

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odborný garant: *Ing. Pavel Jelínek, Ph.D.*