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VABILO NA PREGLOV KOLOKVIJ /
INVITATION TO THE PREGL COLLOQUIUM

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**Velika predavalnica Kemijskega inštituta / Lecture Hall, National Institute of
Chemistry; Hajdrihova 19, Ljubljana**

Protein pores as nanoreactors for single-molecule covalent chemistry

Non-covalent and covalent chemistry can be observed at the single-molecule level by using engineered protein pores as "nanoreactors". By recording the ionic current driven through single engineered alpha-hemolysin pores in a transmembrane potential, individual binding events or bond-making and bond-breaking steps are monitored with sub-millisecond time-resolution. Reversible non-covalent interactions observed in this way include the coordination of cations and anions by cognate ligands, the binding of small organic molecules to macrocyclic hosts and the formation of DNA duplexes. A variety of covalent chemistry has also been observed by this approach including multiple turnovers of reversible reactions, polymer chain elongation, complex reaction networks and the monitoring of small molecular walkers in real time. The scope of the approach can be expanded by using unnatural amino acid mutagenesis to place a variety of reactive side chains within the lumen of the pore. Further, covalent chemistry within protein nanopores forms the basis of a means to detect reactive analytes at the single molecule level.

Vljudno vabljeni! / Kindly invited!

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