**Material-binding peptides: from basics to surface engineering**

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Adsorption of biomolecules is often the starting point to i) material integration in the human body or ii) bofilm construction on any type of material in a natural environment. Some biomlecules, in particular peptides, are now frequently utilized to control the reactivity or passivation of solid materials. It is thus crucial both to understand the interaction of biomolecules with solid surfaces and, deduce ways of immobilizing them, or of using them in syntheses, to reach new bio-functional materials.

Mostly based on a surface science approach, sometimes enriched by calculations, this presentation will focus on basic investigations of the adsorption short peptides on metal, or on oxide nanostructured surfaces. Then, since these peptides can serve as functional units for the creation of various tools for nanobiotechnology, examples of peptide-directed synthesis, or of peptide-modified materials, showing specific properties, like chirality, specific recognition or anti-adhesive properties for instance, will be presented.

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