



Fyzikální ústav Akademie
věd České republiky
Institute of Physics of the
Czech Academy of Sciences

CELOÚSTAVNÍ SEMINÁŘ FZU COLLOQUIUM

13. 2. 2019 | 14:00

přednáškový sál | main lecture hall

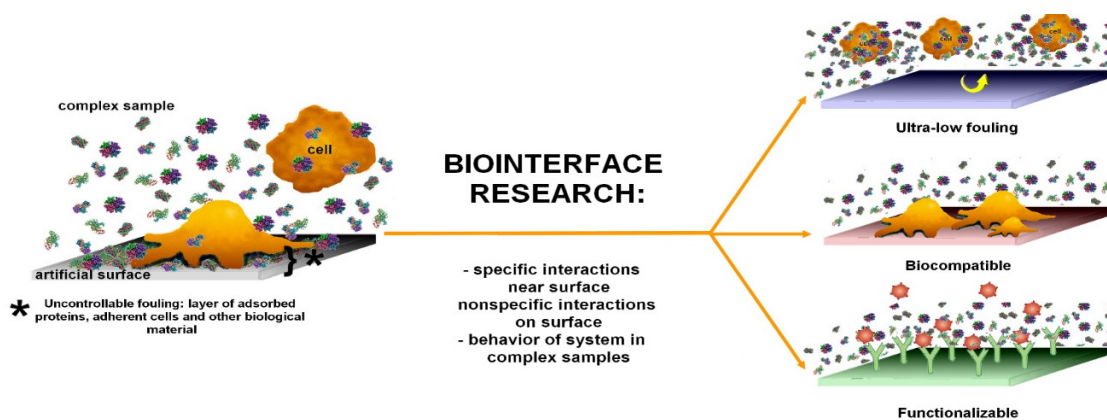
Pod Vodárenskou věží 1, Praha 8

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MOLECULAR-LEVEL MECHANISMS OF BIOFOULING AT FUNCTIONAL SURFACES FROM NEW THEORIES TO NOVEL BIO-INSPIRED MATERIALS

The purpose of this colloquium is to introduce a new research direction that has been recently supported by Czech Academy of Sciences' Lumina Quaeruntur Award. The aim of this highly interdisciplinary research is to provide new fundamental discoveries on surface-mediated biomolecular interactions in their native biological environments. Molecular mechanisms of undesirable nonspecific adhesion of biomolecules and cells to surfaces, i.e. "(bio)fouling", will be examined at the molecular level using tailored low-fouling functional coatings and advanced experimental techniques combined with theoretical predictions. Molecular models of fouling mechanisms will be explored based on the extensive study on complex relationships between artificial surface properties and complex real-world biological samples. Based on the proposed research, new advanced low-fouling coatings with desired properties will be developed and their potential application in various areas of biochip technologies such as clinical diagnostics, food safety, and security will be examined. Furthermore, this research program will take advantage of well-established material science and a newly-established biological laboratory at FZU and will promote internal, national, and international collaborations.



Scheme of the research mission: the key issues in fouling phenomena will be solved based on breakthrough research on nonspecific interactions of biomolecules with artificial surfaces. This knowledge will be utilized to design surfaces with desired properties to explore monitoring biomolecules and their interactions in native environments.

Seminář proběhne v angličtině. Hlavním organizátorem je Fyzikální ústav Akademie věd ČR.
The colloquium will be held in English. Organised by Institute of Physics of the Czech Academy of Sciences.