



## KONWERSATORIUM INSTYTUTU FIZYKI UMCS

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### *“Two-dimensional world of silicene”*

The great success of graphene has initiated the era of single layer thick two-dimensional materials mainly composed of group 14 of the periodic table elements. In the last few years, this new class of two-dimensional crystals has become the subject of intense research, mainly due to the predicted excellent physicochemical properties and the promising perspectives for potential applications, including nanoelectronic, optoelectronic, catalytic, and electricity storage devices, gas sensors or new generation hybrid functional materials.

The oldest member of the family of these two-dimensional materials is silicene - the silicon counterpart of graphene. It is not only compatible with current silicon-based electronics, but it can also be easily functionalized. This opens up, unavailable to graphene, possibilities for the design and construction of modern electronic devices, such as a topological field effect transistor, or the creation of new technological concepts, such as straintronics, a technology that utilizes modifications of the atomic structure to control electronic properties.

During the talk I will discuss selected issues related to the synthesis, characterization and functionalization of silicene layers in the context of new exotic properties and promising future applications.

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Uprzejmie zapraszam wszystkich pracowników, doktorantów i studentów Instytutu Fizyki.

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