

## **'Catching the Flu': A Supramolecular View on the Interaction of Viruses at Interfaces**

Multivalency is the phenomenon that describes the interaction between multivalent receptors and multivalent ligands. It is well known to play a pivotal role in biology, particularly in protein-carbohydrate interactions that occur at cell surface interfaces. For example, the infection of a cell by the influenza virus is induced by a multivalent supramolecular recognition event that defines the onset of endocytosis. The relationships between biological and medical phenomena of a virus infection on the one hand and molecular binding aspects on the other remain, however, poorly understood.

These disciplines meet at the multivalent interface. A key point of the current presentation will be the transition area between slowly and rapidly exchanging multivalent interactions, and their influence on the dynamics and overall functioning of supramolecular systems at interfaces. It will be explained how this concept can lead to the design of artificial platforms to mimic and study the interaction between influenza and a cell surface. By introducing various molecular and biophysical aspects to increase the complexity of the system in a stepwise manner, contributions of multivalency, receptor structure, density and clustering, and particle mobility can be addressed. This way, the multivalent interaction and dynamics bridge molecular and biological processes at different length and time scales.