



UNIVERSITÀ
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Dottorato di Ricerca Internazionale in Scienze Chimiche

Si comunica che, nell'ambito delle attività seminariali del Dottorato di Ricerca,

Prof. Dr. Ir. Jurriaan Huskens

Direttore del Molecular Nanofabrication (MnF) group
Twente University, Enschede (Paesi Bassi)

Martedì 29 ottobre 2019, ore 16:00

terrà,

presso l'Aula A del Dipartimento di Scienze Chimiche, il seminario dal titolo:

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

L'organizzatore del seminario

Prof. Giuseppe Spoto

Il Coordinatore del Dottorato

Prof. Salvatore Sortino

Il Direttore del Dipartimento

Prof. Roberto Purrello



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Jurriaan Huskens

Jurriaan Huskens (1968) studied chemical engineering at the Eindhoven University of Technology, and obtained his PhD (1994) at the Delft University of Technology with Herman van Bekkum. After postdoctoral stays with Dean Sherry (UT Dallas) and Manfred Reetz (MPI Kohlenforschung), he became assistant professor (1998) with David Reinhoudt at the University of Twente, where he became full professor “Molecular Nanofabrication” in 2005. He received the Unilever Research Award 1990, a Marie Curie fellowship (1997), and the Gold Medal 2007 of the Royal Netherlands Chemical Society. Present research interests encompass: supramolecular chemistry at interfaces, supramolecular materials, multivalency, influenza, nanofabrication, and solar fuels. He is (co)author of about 400 refereed research papers and five patents.



“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.