ETH zürich

Institute of Fluid Dynamics
Institute of Energy and Process Engineering

Colloquium Thermo- and Fluid Dynamics

Multiscale Engineering of Molecular Sensors

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Molecular sensing plays a crucial role in health diagnostics, food quality and environmental monitoring, among many other fields. Designing high performance sensors is challenging, as mass transfer to the sensor surface, selective and reversible analyte surface interaction, as well as signal transduction need to be controlled and harmonized. This lecture will detail our recent advances in the understanding and engineering of molecular sensors based on nano particles with tailor made surface properties. We will elaborate how such nanoparticles can be self assembled to porous films to transform chemical information in fluids into optical or electrical signals to quantify trace level molecular concentrations selectively.

Andreas Güntner is an Assistant Professor of Molecular Sensing at ETH Zürich and a Research Associate at the University Hospital Zürich. His research centers around physics, chemistry and medicine to gain new fun damental understanding in micro/ nanosystems to advance the engineering of molecular sensors for health, food and environmental applications. Before, he served as CEO and co founder of Alivion AG that has successfully commercialized the first handheld methanol detector with clients on four continents in the food, oil gas, health and transportation industries. His scientific and entrepreneurial activities have been recognized by several awards, including ERC Starting Grant, Emerging Technology Award by the Royal Society of Chemistry, Beiersdorf Excellence Award in Product Design and Engineering by the European Fed Chem Eng and the De Vigier Award among others.

Date: Wednesday, 25 October 2023
Time: 16:15 - 17:15h
Place: ETH Zurich, ML F 36
Host: Prof. Filippo Coletti, IFD

Further information: https://ifd.ethz.ch/events/ktf.html

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