

**ICB seminar series 2016/17**

chairman: Prof. Dr. Andrew deMello

## CHEMICAL ENGINEERING OF INFORMATION

**Prof. Dr. Robert Grass**

Titularprofessor ETHZ  
Functional Materials Lab

**ETH Hönggerberg, 31/05/2017**

**HCI J 7, 17.00 h**

The Seminar will be followed by an Apéro



**Abstract.** We live in the Information Age. Our everyday work has changed dramatically as a result of novel digital tools: The omnipresent access to knowledge is accelerating chemical development and has a strong influence on the field of Chemical Engineering. But conversely, what problems of the Information Age can be solved using Chemical Engineering tools? What is the stake of Chemistry if our future world is mainly interested in zeros and ones? Within this presentation I will show how engineering methods can be utilised to approach two problems of the Information Age: The long-term storage of information and the analysis of information flow. First the discussion will involve the utilisation of nucleic acids as an information carriers. I will show how DNA enables the ubiquitous tagging/tracing of goods and material flows. It may also revolutionise archival data storage ultimately allowing digital data archiving for thousands of years with minuscule space requirements. In a second aspect I will discuss novel ways of describing and understanding information flow, profiting from the data abstraction and flow characterisation methods found in our Chemical Engineering textbooks.

**Speaker highlights.** Robert Grass is Titular Professor at ETH Zurich. He studied Chemical Engineering at ETH with a stay at CASE Western Reserve University in 2003 after which he pursued a PhD at ETH Zurich. His interest is situated at the interface of Chemical Engineering, Material Science and Bioengineering. Based on results of his research he co-founded the companies TurboBeads GmbH (2007) and Haelixa GmbH (2016) commercializing magnetic nanoparticles (e.g. via Sigma Aldrich) and DNA tracing technologies. Since 2008 Robert Grass is responsible for the Process Control lecture in the Chemical Engineering Curriculum at ETH Zurich.