

March 22, 2021, 3-4pm

Prof. Dr. Kurt Wagemann

How to get Rid of CO₂ - Chemistry as the key to a world without oil, natural gas or coal

A successful climate policy requires a great effort from ALL sectors. This includes traffic with its demand for fuels, but also chemistry as one of the energy-intensive industries. Today, oil dominates both sectors. In Germany, about 54 million tons of gasoline and diesel fuel are put into circulation and about 20 million tons of raw materials are needed for chemical production, of which only a small part is of biogenic origin. If we want to get away from oil, there are essentially four options for both sectors:

- Increased use of renewable raw materials mainly on the basis of green plants
- Especially in the case of plastics, a significant increase in the use of recyclates, which means reused materials
- The direct use of renewable electricity in battery-powered electric vehicles and electrochemical processes
- The indirect use of renewable electricity, which in a first step generates hydrogen by electrolysis. This is then used in fuel cell vehicles or for the production of synthetic fuels and chemicals with CO₂ as a raw material.

This last-mentioned future technology – usually called Power-to-X – will become of high importance because there is a continuing need for liquid fuels and carbon skeletons will continue to form the backbone of almost all chemicals in the future.

The lecture will use selected examples to describe the production of fuels and chemicals based solely on electricity, water and CO₂. In addition to describing the technology options, major research projects and global initiatives will also be presented.



Prof. Dr. Kurt Wagemann, chemist, DECHEMA, D

Kurt Wagemann has been the managing director of DECHEMA since January 1st 2010. He was born 1959 and studied chemistry at the Ludwig - Maximilians - University in Munich. After completing his doctorate at the Max Planck Institute for Quantum Optics, he joined DECHEMA in 1989.

March 22, 2021, 4-5pm
Energy Supply in Labs

Energy Supply in Labs has different perspectives. But operators, engineers and suppliers are pursuing one goal. The implementation of energy-saving technologies or the operation of a - as far as possible - Co2-neutral building. What measures can be taken and are useful, what is the significance of a smart grid and how can the operator be sure that he is well equipped for the foreseeable future. In addition to the social responsibility of everyone involved in the construction process, avoiding the costs of CO2 emissions is also a driving force.

On one side the demands for Indoor air quality gets more and more attention. The times that only temperature was the driver for comfort and good working environment has passed. Indoor air quality gets more and more parameter beside temperature. Humidity was already on the radar for most of us, but new European regulations are driving us also to take care of CO2 and particles. The recent pandemic increased even more this demand. Most of the times this means higher filtration, more fresh air, higher energy consumption in ventilation.

On the other hand, Europe is demanding us to take care of our climate and try to reduce the impact on the climate change. Clients and cities are demanding us to design carbon neutral buildings. Where are we today and what needs to be done to achieve this?



Dr. ir. Coen Van Canneyt, mechanical engineer, ingenium, B

Building services engineering, phd in bioengineering. Koen built up extensive experience as a project manager. He is particularly specialized in (the technology of) laboratories and cleanrooms. He helps the customer make sustainable choices while taking budgets and timing in mind. He likes to share the extensive knowledge and expertise that he has built up through many projects. He is a strong partner in every phase of your project: the first brainstorm, the concrete design, the follow-up during implementation, support during commissioning and maintenance during the operational phase.



Peter Dockx, Senior Consultant Laboratory design, Exilab, Belgium

Peter Dockx is as senior consultant laboratories designer active at Exilab, Excellence in Lab Engineering.

Peter has made several technical concepts for laboratories for pharmaceutical plants, research facilities, quality control, health sector, Universities, ...

To enforce Exilab's ambition, Peter is actively involved in EGNATON (European Association for Sustainable Laboratories). He is chairman of the "Lab Energy" work group and member of the technical committee.



Jens Feddern, Engineer in electrical science, Siemens, CH

Jens Feddern is an engineer in electrical science and holds an executive master in business studies.

In his professional live he has been active in building automation and electrification since more than 25 years, 20 years of these related to the Life Science Industry in different roles.

Next to his function at Siemens Switzerland as Head Vertical Market Life Sciences in Switzerland he is board member of the Green Building Switzerland association and is heading there the Green Lab initiative.



Mario Don Porto Carero Senior Principal Engineer E&D / HVAC, J&J, B.

In this role he has global responsibility for the Standard Design Platforms HVAC, Cleanrooms and Lab ventilation of J&J. Mario is an engineer with experience in overall HVAC system design, commissioning and qualification, life cycle cost and energy analysis for Labs, Chemical and Pharmaceutical production related ventilation. He started his career in 1992, joined J&J in 1995 as a validation engineer and over the years he had different roles covering several aspects of cleanroom and HVAC systems (technical owner, project engineer, startup manager, senior manager HVAC).

Being a LEED AP and having a CEM degree, sustainability is key and fully integrated in the design process.

In EGNATON, Mario chairs workgroup 1; Ventilation. He is also member of the technical committee of the Belgian Cleanroom Workclub (BCW).