

The Future of Engineering Education  
Parallel Sessions I

## Innovative Teaching and Learning Methods

Time: 2 April 2020, 2pm – 4pm  
Venue: Congress Centre Darmstadtium

### Abstract

The session will start with presentations of a wide variety of innovative teaching and learning technologies and methodologies. The talks deal with virtual reality (VR) and open source technology, virtual exchange programs between partner universities, students solving tasks in interdisciplinary teams, and train the teacher in a way that they can awaken enthusiasm among students for technical issues. After the presentations, all participants will actively be involved to discuss the influence these new methodologies and technologies have on the organization as a whole and the student and teacher specifically. Among other questions: Does the use of new technologies influence the skills teachers need to adapt to these new technologies? Which social skills are necessary to train the student to face the societal challenges of the future?

### Keywords and concepts

Virtual reality, New Technologies in Teaching, Motivational Methods

### Contributors

#### **Professor Albert Albers (Karlsruhe Institute of Technology, KIT)**

Professor Albert Albers has been head of the IPEK – Institute of Product Engineering since 1996. After his studies of mechanical engineering at the University of Hannover from 1978 to 1983, Albers had an assistantship at the Institute of Machine Elements and Engineering Design and obtained his doctorate in 1987. From 1986 to 1988 Albers had a position as a senior engineer at the Institute of Machine Elements and Engineering Design at the University of Hannover until he started his career in industry at LuK, a company of the Schaefer-Group with focus on clutch- and gear-systems. Before returning to academia in 1996, Prof. Albers was product development manager, responsible for clutch-systems and member of the executive board.

#### **Professor Fausto Gallucci (Department of Chemical Engineering and Chemistry – Eindhoven University of Technology, TU/e)**

Professor Fausto Gallucci has studied Chemical Engineering at the University of Calabria (UNICAL, Arcavacata di Rende, Italy) where he obtained his MSc (2001) and PhD (2006) degrees. In 2009 he was appointed Assistant Professor (tenure track) at the University of Twente (Enschede, the Netherlands). In 2010, he moved to the Chemical Process Intensification laboratory at Eindhoven University of Technology (TU/e, The Netherlands) as Associate Professor in 2015, leading the Multiphase Reactors research effort. In 2018 he was appointed full Professor at the chair 'Inorganic Membranes and Membrane Reactors'. Prof.dr. Fausto Gallucci is responsible for the development of a virtual chemical plant at TU/e, where virtual reality (VR) is used for teaching of students.

**Professor Sören Hohmann (Karlsruhe Institute of Technology KIT)**

Professor Sören Hohmann has been Head of the Institute of Control Systems at KIT since 2010. From 1992 to 1997, he studied electrical engineering, specialization in control technology at TU Braunschweig, University of Karlsruhe (TH/today KIT), and the école nationale supérieure d'électricité et de mécanique Nancy. He obtained his doctorate in 2002 with a thesis on non-linear time-discrete control systems. He worked for BMW and was responsible for advanced development of braking systems and series development of integrated vehicle dynamics controls (ICM) and sensors. His last position in 2010 was Head of the advance and series development of active safety systems.

**Katrin Klink, M.A (Karlsruhe Institute of Technology KIT)**

Katrin Klink has worked in Human Resources Development at KIT since 2003 and is currently Head of Diversity Unit. She studied German Language and Literature and Sociology at the University of Karlsruhe (TH/today KIT). In Human Resources development, she has been contact person for tutor programs, offers for the scientific personnel as well as for the qualification program "keys2competence" and in-house seminars. She also has been Head of the Research Staff Department.

**Professor Sven Matthiesen (IPEK - Institute of Product Engineering at Karlsruhe Institute of Technology, KIT)**

Professor Sven Matthiesen has been full professor for Power Tools at the IPEK – Institute of Product Engineering at Karlsruhe Institute of Technology (KIT) since 2010. He studied Mechanical Engineering at University of Karlsruhe (today: Karlsruhe Institute of technology) from 1991 to 1997. From 1997 to 2002, he worked as a Research assistant at the Institute for Mechanical Design and Automotive Engineering and obtained his doctorate in 2002. In 2003, he moved to HILTI Corporation and started out as a design engineer in device development, his last position in 2010 was Head of Development in bolt technology.

**Françoise Docq (Louvain Learning Lab at Université catholique de Louvain)**

Françoise Docq is head of the Louvain moocXperience initiative at Université catholique de Louvain (UCLouvain), Belgium. She coordinates the MOOC – massive open online courses - development team and supports professors' and UCLouvain's MOOC strategies. With a master degree on Education sciences, she has been acting as Faculty developer since 1997 at the Louvain Learning Lab, UCLouvain's teaching services department. She has specialized in educational technology, online and distance learning and Higher Education innovation.

**Professor Jean-François Remacle (Université catholique de Louvain)**

Professor Jean-François Remacle has studied electromechanical Engineering at University de Liège in 1992 followed by a PhD in 1997. After spending two years at Ecole Polytechnique de Montréal as a post-doctoral fellow, followed by three years at Rensselaer Polytechnic Institute in the research team of Prof. M. Shephard, first as research associate followed by two years as research assistant professor, he became Assistant Professor at Université catholique de Louvain in 2002, then Associate Professor in 2005

**Participating in the session planning**

University of Technology Eindhoven, UCLouvain, Karlsruhe Institute of Technology

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