

Invited Speakers

Philippe Dagaut, CNRS Orléans, France

Pascale Desgroux, Université Lille 1, Laboratoire PhysicoChimie de la Combustion, France

Kristina Eisen (née Noack), University of Bremen, Germany

Tiziano Faravelli, Politecnico di Milano, Dipartimento di Chimica, Materiali ed Ingegneria Chimica, Italy

Yiguang Ju, Princeton University, Department of Mechanical and Aerospace Engineering, USA

Tina Kasper, Universität Duisburg-Essen, Institut für Verbrennung und Gasdynamik, Germany

Howard Levinsky, University of Groningen, Faculty of Mathematics and Natural Sciences, The Netherlands

Mark Linne, University of Edinburgh, School of Engineering, UK

Terese Løvås, Norwegian University of Science and Technology, Department of Energy and Process Engineering, Norway

John Mantzaras, Paul Scherrer Institute, Combustion Research, Switzerland

Wolfgang Meier, Deutsches Zentrum für Luft- und Raumfahrt (DLR), Institut für Verbrennungstechnik, Germany

Hope Michelsen, Sandia National Laboratories, Combustion Research Facility, USA

Heinz Pitsch, RWTH Aachen University, Institut für Technische Verbrennung, Germany

Fei Qi, Shanghai Jiao Tong University, School of Mechanical Engineering, P.R. China

Hai Wang, Stanford University, Department of Mechanical Engineering, USA

Franz Winter, Technische Universität Wien, Institut für Verfahrenstechnik, Umwelttechnik und technische Biowissenschaften, Austria

Scientific Committee

Katharina Kohse-Höinghaus

Physical Chemistry I, Bielefeld University, Germany

Marcus Aldén

Combustion Physics and Center for Combustion Science and Technology, Technical University Lund, Sweden

Mara de Joannon

Istituto di Ricerche sulla Combustione, CNR, Naples, Italy

Christof Schulz

Institute for Combustion and Gas Dynamics and Center for Nanointegration (CENIDE), University of Duisburg-Essen, Germany

Local organization

Physical Chemistry I, Bielefeld University

cdcc2017@uni-bielefeld.de

apl. Prof. Dr. Andreas Brockhinke,

Dr. Michael Letzgus, Regine Schröder

Deadlines and Conference fees

Registration:

February 01 to June 16, 2017

Registration until April 15, 2017 (early):

Regular participant: 280 €

Advanced/PhD student: 180 €

Registration after April 15, 2017 (late):

Regular participant: 320 €

Advanced/PhD student: 200 €

Abstract submission:

February 01 to April 15, 2017

Acceptance of posters/contributed talks:

May 08, 2017

Sponsors

German Science Foundation (DFG)

Center for Interdisciplinary Research (ZiF)

German Bunsen Society of Physical Chemistry (DBG)

www.uni-bielefeld.de/cdcc



International Bunsen Discussion Meeting Chemistry and Diagnostics for Clean Combustion

Center for Interdisciplinary Research Bielefeld
June 21–23, 2017



Introduction

More than 80% of the global primary energy is supplied by fossil-fuel combustion, resulting in adverse effects on climate, air quality, and health. Because of the scale of the energy needed, a transition towards a renewable energy system will take time. Meanwhile, strategies for clean(er) combustion receive increasing attention.

In a discussion-oriented, interdisciplinary atmosphere, this international meeting will focus on some rapidly emerging and particularly timely issues in combustion research, including increased efficiency, alternative fuels, and pollutant formation. Knowledge from different disciplines must be integrated to understand these issues:

- *Chemistry* to describe the reaction pathways for novel fuels and new efficient combustion strategies,
- *Physics* to monitor the combustion process and identify reactive species with suitable diagnostics, and
- *Engineering* to understand the influence of the boundary conditions of practical combustion processes.

The meeting thus aims to provide forefront interdisciplinary knowledge from different international perspectives to reflect strategies for the future and to form nuclei for joint research activities. The program with invited lectures by eminent international experts as well as contributed talks, selected from submissions, and poster presentations includes ample time for networking and informal exchange.

Preliminary Program

Wednesday, June 21

09:00 Welcome

Session 1: Cleaner combustion systems: Understanding needs and details

09:15 **H. Wang:** *Soot formation chemistry*

10:00 **P. Dagaut:** *Low-temperature chemical kinetics of alternative and conventional fuels oxidation*

10:30 Coffee break

11:00 **H. Levinsky:** *Why can't we just burn hydrogen? Challenges to changing fuels*

11:30 **P. Desgroux:** *About the formation of (some) pollutants in combustion processes*

12:00 Contributed talks

12:30 Lunch

Session 2: Combustion applications: Impact and reduction of emissions

14:00 **H. Michelsen:** *Understanding combustion emissions and their impact on climate*

14:45 **H. Pitsch:** *Autoignition chemistry and model reduction*

15:15 **T. Løvås:** *Biofuels for aviation from thermal conversion of biomass, a multi-scale problem*

15:45 Coffee break

16:15 Rapid poster talks

16:45 **F. Winter:** *Applied combustion, pyrolysis and gasification*

17:15 Discussion and networking

18:30 Posters and Snacks

Thursday, June 22

Session 3: Chemistry for cleaner combustion: Fuels, mechanisms, and aftertreatment

09:15 **F. Qi:** *Advanced synchrotron-based combustion diagnostics*

10:00 **T. Faravelli:** *Reaction models for emission prediction*

10:30 Coffee break

11:00 **Y. Ju:** *Experiments and models of low temperature combustion of alternative fuels*

11:30 **J. Mantzaras:** *Experiments and models for catalytic combustion*

12:00 Contributed talks

12:30 Lunch

Session 4: Physics: Tools and techniques

14:00 **M. Linne:** *Diagnostics for dense sprays in support of predictive models*

14:45 **T. Kasper:** *Diagnostics for combustion and nano-particle formation*

15:15 **K. Eisen:** *Multi-quantity diagnostics for an efficient process design*

15:45 Coffee break

16:15 Rapid poster talks

16:45 **W. Meier:** *Multi-species diagnostics at high pressure for gas turbine combustion*

17:15 Discussion and networking

18:30 Conference Dinner and Evening Nature Walk

Friday, June 23

Session 5: Discussion

09:00 Panel discussion on future needs

10:00 Coffee break

10:30 Discussion breakout of participants

11:30 Plenary discussion

12:00 Farewell and meeting adjourn