



Ortsverband Göttingen

GDCh-Kolloquium

950. Sitzung

Wilhelm-Jost Gedächtnisvorlesung

Dr. Nils Hansen

Sandia National Laboratories, Livermore, USA

„Chemical Kinetics in Multiphase Chemical Transformation“

Dienstag, 29.10.2022, 17 Uhr c.t.,

Hörsaal MN30

Abstract

Wilhelm Jost is particularly renowned for his contributions to the field of chemical kinetics and reaction dynamics. He has made significant advancements in understanding of how chemical reactions occur during combustion, which is critical for various applications ranging from industrial processes to energy production and environmental science. His work continues to support today's development of and transition to clean and energy-efficient chemical transformations.

Continuing and expanding of the foundational principles established by Wilhelm Jost, we have applied mass spectrometric approaches to provide basic insights into chemical kinetics of reaction networks of complex environments and applications. The first part of the talk focuses on new chemical insights into molecular-weight growth and soot formation chemistry in combustion processes by reactions of resonantly stabilized radicals. The second part of the talk focuses on reaction networks found in catalytic heterogeneous chemical transformations. Specifically, we will highlight new insights into gas-surface interactions during catalytic partial oxidation of methanol and oxidative coupling of methane with soft oxidants. The last part highlights how non-equilibrium plasma can initiate chemical conversion through the generation of charged species, radicals, and excited-state species. We will discuss examples from plasma-assisted chemical looping combustion and methane dry reforming.

Der GDCh Ortsverbandsvorsitzende PD Dr. O. Bünermann

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