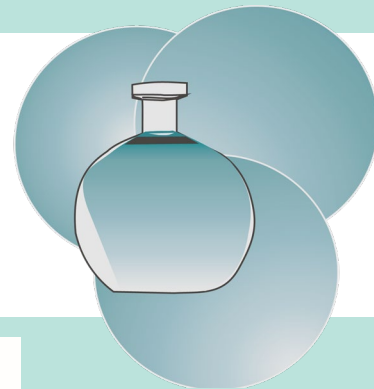


Fakultät für Naturwissenschaften Institut für Chemie



lädt ein

gemeinsam mit der Gesellschaft
Deutscher Chemiker
zum

Vortrag
von Herrn

**Prof. Christoph
Rameshan**

Chair of Physical Chemistry
**Montanuniversität Leoben
Österreich**



"Perovskite Oxides – A Materials Playground for Catalytic Energy Conversion Applications"

am: 19. Oktober 2023

um: 16:00 Uhr

WO: im Raum 1/232

Die kleine Kaffeerunde vor dem Vortrag beginnt
um 15:30 Uhr im Raum 1/232.

Das Mitbringen von eigenen Trinkgefäßen ist
erwünscht.

Gäste sind herzlich willkommen!

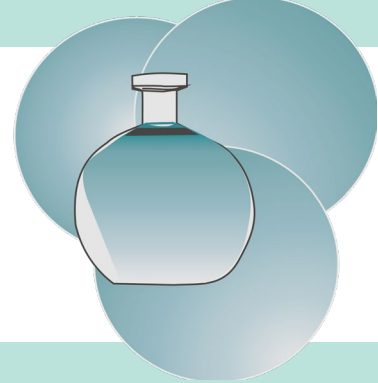


TECHNISCHE UNIVERSITÄT
IN DER KULTURHAUPTSTADT EUROPAS
CHEMNITZ

Prof. Dr. Michael Sommer

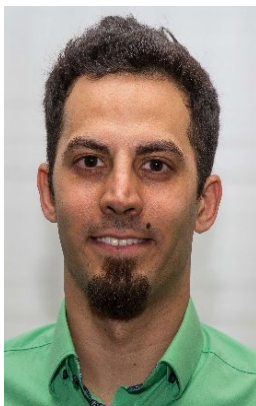
Telefon: 0371 / 531 32507

E-Mail: michael.sommer@chemie.tu-chemnitz.de



**Prof. Christoph
Rameshan**

Chair of Physical Chemistry
**Montanuniversität Leoben
Österreich**



**“Perovskite Oxides – A Materials Playground for Catalytic Energy
Conversion Applications”**

Perovskite oxides with their general structure ABO_3 are an extremely versatile material class. They are stable at high temperatures even under harsh environments. Both A- and B-site of the host lattice can be doped, enabling a materials design approach (e.g., for utilization as electrode material, solar cell, catalyst or gas sensor). For our particular materials, their catalytic properties are optimized for catalytic and electrocatalytic applications. Additionally, perovskite oxides can exsolve B-site cations under reducing conditions (i.e. the growth of finely dispersed nanoparticle on the surface). This feature makes them particularly interesting as novel catalyst materials for high temperature reactions.

In our work we highlight how we can tune the composition of different perovskites to optimize their surface and bulk properties. By a combination of spectroscopic (in-situ) characterization with theoretical calculations we can understand their specific properties. Especially the rich oxygen surface chemistry of these novel materials makes them interesting for catalytic applications. Our focus is on high temperature reactions for the (electro)catalytic transformation of CO_2 into valuable products. Their thermal stability and oxygen surface chemistry makes them ideal materials for reverse water gas shift and dry reforming. Furthermore, the direct electrocatalytic reduction of CO_2 to CO is a promising route for CO_2 utilization. Furthermore, perovskites can prevent some of the major problems of catalyst deactivation. The sintering of active nanoparticles and the deactivation by coke formation.

