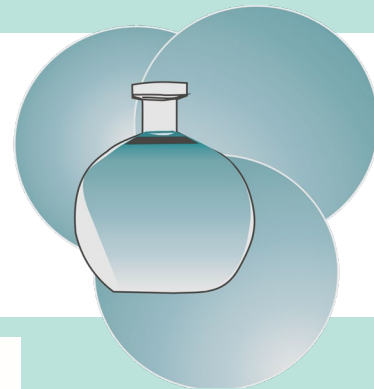


Fakultät für Naturwissenschaften

Institut für Chemie



lädt ein

gemeinsam mit der Gesellschaft
Deutscher Chemiker
zum



Vortrag

von Herrn

**Prof. Sebastian
Hasenstab-Riedel**

*Institut für Chemie und
Biochemie*

Anorganische Chemie

Freie Universität

Berlin

**“From Laboratory
Curiosities to Industrial
Applications: the World
of Halogens”**

am: 05. Juni 2025

um: 16:00 Uhr

WO: im Raum 1/232

Gäste sind herzlich willkommen!



TECHNISCHE UNIVERSITÄT
IN DER KULTURHAUPTSTADT EUROPAS
CHEMNITZ

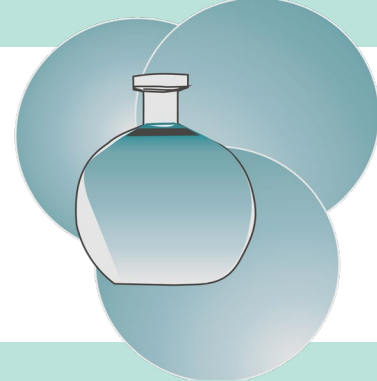
Prof. Dr. Michael Sommer

Telefon: 0371 / 531 32507

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

Fakultät für Naturwissenschaften

Institut für Chemie



**Prof. Sebastian
Hasenstab-Riedel**

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Anorganische Chemie

Freie Universität Berlin



“From Laboratory Curiosities to Industrial Applications: the World of Halogens”

Novel super acids offer the possibility of synthesizing hitherto unknown compounds.[1] Based on such Lewis and Brønsted acids, we have succeeded in synthesizing and characterizing so far unknown halonium ions, which are ideal alkylation reagents due to their high reactivity.[2,3] Furthermore it was shown, that e.g. chloronium ions can be stabilized by polychloride monoanions such as $[\text{Cl}_3]^-$. [4]

Especially such polychloride anions offer new possibilities which are not only of academic interest.[5-8] The value of trichlorides for chlorine storage and chlorination reactions is only one aspect in this context. Particularly, the inexpensive ionic liquid $[\text{NEt}_3\text{Me}][\text{Cl}_3]$ shows a similar and sometimes even advantageous reactivity compared to chlorine gas, while offering a superior safety profile. Furthermore, this chemistry shows also new applications in the direction of hydrochlorinations and beyond.

References:

- [1] A. Wiesner, T. W. Gries, S. Steinhauer, H. Beckers, S. Riedel, *Angew. Chem. Int. Ed.* **2017**, 56, 8263.
- [2] S. Hämmerling, G. Thiele, S. Steinhauer, H. Beckers, C. Müller, S. Riedel, *Angew. Chem. Int. Ed.* **2019**, 58, 9807.
- [3] K. F. Hoffmann, A. Wiesner, C. Müller, S. Steinhauer, H. Beckers, M. Kazim, C. R. Pitts, T. Lectka, S. Riedel *Nature Comm.* **2021**, 12, 5275.
- [4] P. Pröhm, W. Berg, S. M. Rupf, C. Müller, S. Riedel, *Chem. Sci.* **2023**, 14, 2325.
- [5] K. Sonnenberg, L. Mann, F. A. Redeker, B. Schmidt, S. Riedel, *Angew. Chem. Int. Ed.* **2020**, 59, 5464.
- [6] P. Voßnacker, N. Schwarze, T. Keilhack, M. Kleoff, S. Steinhauer, Y. Schiesser, M. Paven, S. Yogendra, R. Weber, S. Riedel, *ACS Sustainable Chem. Eng.* **2022**, 10, 9525.
- [7] M. Kleoff, P. Voßnacker, S. Riedel, *Angew. Chem. Int. Ed.* **2023** e202216586
- [8] P. Voßnacker, A. Wüst, T. Keilhack, C. Müller, S. Steinhauer, H. Beckers, S. Yogendra, Y. Schiesser, R. Weber, M. Reimann, R. Müller, M. Kaupp, S. Riedel, *Sci. Adv.* **2021**, 7, 40: eabj5186