



GESELLSCHAFT DEUTSCHER CHEMIKER

Ortsverband Osnabrück

“Supramolecular Electrochemistry: Novel Approaches for Sensing and Redox Switching”

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As ubiquitous constituents of Nature, ions play a crucial role in a wide range of environmental, physiological and technical applications, necessitating their selective detection. Due to their low-cost, high sensitivity and real-life applicability, electrochemical sensors have been increasingly explored in this context. In particular, synthetic supramolecular ion receptors based on reversible host-guest interactions have emerged as promising candidates for the construction of reusable electrochemical ion sensors.¹ Nevertheless, a routine application of such systems, remains elusive, in particular for the detection of anions. Herein, recent contributions to an improved fundamental understanding of these systems² as well as their proof-of-principle application in reusable, real-time flow sensors will be discussed.^{3,4} A particular focus will be directed at redox-active anion receptors, which can not only enable sensing in various voltammetric or redox-capacitive formats but are also powerful, electrochemically switchable ion receptors.²⁻⁵ As a result, they can not only serve as versatile platforms for the fundamental investigation of non-covalent interactions^{2,5} but are also promising candidates in the construction of electrochemically-driven molecular switches and machines.⁶

1) R. Hein, P.D. Beer, J.J. Davis, *Chem. Rev.* 2020, 120, 1888.

2) R. Hein, X. Li, P.D. Beer, J.J. Davis, *Chem. Sci.* 2021, 12, 2433.

3) S. C. Patrick, R. Hein, M. Sharafeldin, X. Li, P. D. Beer, J. J. Davis, *Chem. Eur. J.* 2021, 27, 17700.

4) S. C. Patrick, R. Hein, P. D. Beer, J. J. Davis, *J. Am. Chem. Soc.* 2021, 143, 19199.

5) R. Hein, A. Docker, J. J. Davis, P. D. Beer, *J. Am. Chem. Soc.* 2022, 144, 19, 8827.

6) R. Hein, B. L. Feringa, unpublished results.

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Besucher sind herzlich willkommen!

Der Ortsverbandsvorsitzende:

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