講演会

日時：2022 年 9 月 27 日(水) 17:00～18:00

~~場所：薬学部　総合研究棟 2 階　講堂~~

（諸事情により、対面での開催が難しくなりましたので、オンラインでのご参加をお願いいたします）

Zoom 配信（事前登録不要）

ミーティング ID: 895 1020 9322

パスコード: 028805

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Exploring the Dynamic World of Membrane Systems and Biocatalysis

To understand life on a molecular level, it is of fundamental importance to study structure, interactions, and dynamics of life's key players – proteins, nucleic acids, and lipids – in their native environment. NMR spectroscopy has a unique potential to provide high spatial and temporal resolution of the target molecules in complex environments. However, sample preparation, low sensitivity, and ensemble averaging pose clear limitations in increasingly complex systems.
The presentation will summarize our recent achievements in overcoming these central restrictions via the development and application of novel methods. This will include our optimized isotope-labelling[1], sample-preparation[2], and polarization-usage[3] strategies as well as selective hyperpolarization via functionalized ligands[4].
Furthermore, it will be discussed how the application of the developed methods can provide new insights into: (i) membrane-induced aggregation of the Parkinson's associated protein α-synuclein[5], (ii) signalling of central membrane receptors[6,7], and (iii) DNA-mediated biocatalysis[8].

[1] Dubey, A. *et al.* (2021) **Angew. Chem.** 60, 13783–13787.
[2] Hagn, F. *et al.* (2013) **J. Am. Chem. Soc.** 135, 1919–1925.
[3] Viegas, A. *et al.* (2016) **J. Biomol. NMR** 64, 9–15.
[4] Viennet, T. *et al.* (2016) **Angew. Chem**. 55, 10746–10750.
[5] Viennet, T. *et al.* (2018) **Commun. Biol.** 1, 44.
[6] Yi, T. *et al.* (2014) **PNAS** 111) E2182–E2190.
[7] Viegas, A. *et al.* (2020) **Structure** 28, 54–62.
[8] Borggräfe, J. *et al.* (2022) **Nature** 601, 144-149.