



南京大学高济宇有机化学前沿讲座

Find the Art of Chemistry!

题目: **Multichromophoric Architectures by Folding and Self-assembly**

报告人: **Prof. Frank Würthner**

Universit ät Würzburg, Institut für Organische Chemie and Center for Nanosystems Chemistry,
Am Hubland, 97074 Würzburg, Germany

地点: 仙林化学楼H201蒋雯若报告厅

时间: 2018年10月15号 (星期一) 上午10:00

联系人: 王乐勇 教授 强琚莉 副教授



E-mail: wuerthner@uni-wuerzburg.de

Contact E-mail: jjl@nju.edu.cn

Scientific Career:

- 1994-1995 Post-doc with Prof. J. Rebek, Jr. at the Massachusetts Institute of Technology (MIT), Cambridge/MA (USA).
- 1995-1996 Chemist at BASF AG, Central Research, Ludwigshafen.
- 1997-2000 Liebig and DFG fellow (Habilitation), University of Ulm.
- 2001/2002 Professor of Organic Chemistry (temporally limited), Technical University of Karlsruhe.
- since 2002 Professor, Chair of Organic Chemistry II, Univ. of Würzburg.
- 2007-2009 Dean of the Faculty of Chemistry and Pharmacy at the University of Würzburg.
- since 2010 Founding Director of the Center for Nanosystems Chemistry.
- since 2016 Member of the Board of Directors of the Bavarian Polymer Institute (BPI) and Head of the Key Lab of Supramolecular Polymers in Würzburg.

Lecture abstract:

Functional materials composed of π -stacked dyes and organic semiconductor molecules have gained increasing popularity during the last two decades. However, our understanding is still rather limited with regard to the impact of particular packing arrangements in the solid state on the optical and electronic properties of dye-based materials. Studies on dye assemblies in solution^[1] constitute the missing link, providing many insights into the coupling among chromophores upon π -stacking, in particular with regard to absorption and fluorescence properties. Within our research on dye assemblies of dipolar merocyanine dyes^[2] and quadrupolar perylene bisimide dyes^[3] we became, however, aware of severe limitations: Thus, it is very challenging for the conventional self-assembly approach to establish a particular dye-dye packing arrangement and to limit the size of an aggregate to a desired supramolecular species. As a consequence of these limitations many interesting scientific questions could not be addressed in the past.

In this talk I will show how tweezer^[4], foldamer^[2] and macrocyclic^[5] architectures can be utilized to position dye molecules into predefined positions. Furthermore, we will show how particular arrangements afford entirely different photophysical properties. These results should be of high relevance for the more rational design of functional supramolecular photosystems and organic solid state materials.

Selected publications:

- [1] Z. Chen, A. Lohr, C. R. Saha-Möller, F. Würthner, *Chem. Soc. Rev.* **2009**, 38, 564-584.
- [2] F. Würthner, *Acc. Chem. Res.* **2016**, 49, 868-876.
- [3] F. Würthner, C.R. Saha-Möller, B. Fimmel, S. Ogi, P. Leowanawat, D. Schmidt, *Chem. Rev.* **2016**, 116, 962-1052
- [4] D. Bialas, A. Zitzler-Kunkel, E. Kirchner, D. Schmidt, F. Würthner, *Nature Commun.* **2016**, 7, 12949
- [5] P. Spent, R. M. Young, B. T. Phelan, M. Keller, J. Dostál, T. Brixner, M. R. Wasielewski, F. Würthner, *J. Am. Chem. Soc.* **2017**, 139, 2014-2021.

欢迎参加!

有机化学学科