



**Mittwoch, 14.06.2023, um 11:15 Uhr**  
**Ort: Reichenhainer Str. 90;**  
**Zentrales Hörsaal- und Seminargebäude,**  
**Raum C10.013**

**Dr. Guillaume Schull**

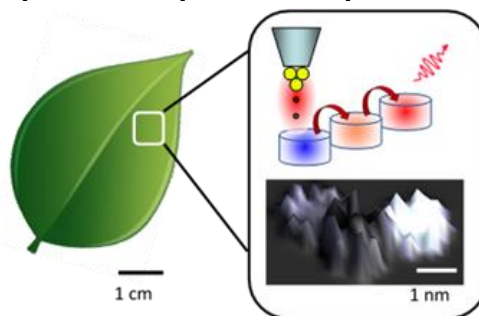
L'Institut de Physique et Chimie des Matériaux de Strasbourg



GAEDE-PREISTRÄGER 2017

## Sub-molecular fluorescence microscopy with STM

The electric current traversing the junction of a scanning tunneling microscope (STM) may lead to a local emission of light that can be used to generate sub-molecularly resolved fluorescence maps of individual molecules. Combined with spectral selection and time-correlated measurements, this hyper-resolved fluorescence microscopy approach allowed us to scrutinize the vibronic structure of individual molecules [1] in a very similar way than in the recent TERS reports, without requiring an optical excitation. We used this approach to characterize the photonics properties of charged species [2], to track the motion of hydrogen atoms within free-based phthalocyanine molecules [3], and more recently to follow resonance energy transfers between individual pigments, exploring processes occurring in photosynthetic complexes with sub-molecular spatial resolution [4]. These results constitute an important step towards photonic measurements with atoms-scale resolution [5].



*Exploring energy transfers occurring in leaves with a scanning tunneling microscope*

### References

- [1] B. Doppagne *et al.*, Phys. Rev. Lett. 118, 127401 (2017)
- [2] B. Doppagne *et al.* Science 361, 251 (2018)
- [3] B. Doppagne *et al.* Nature Nanotechnol. 15, 207 (2020).
- [4] S. Cao *et al.* Nature Chem. 12, 766 (2021)
- [5] A. Roslawska *et al.* Physical Review X 12, 011012 (2022)

Alle Zuhörer sind ab 11:00 Uhr zum Kaffee vor dem Hörsaal eingeladen.

Informationen zum Vortrag erteilt:

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