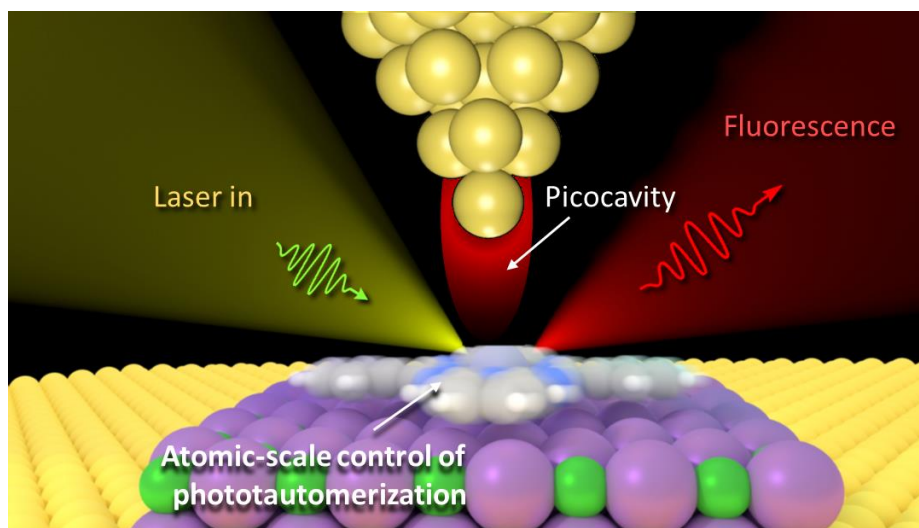


Atomic-scale photophysics and photochemistry with plasmonic picocavities.

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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 characterize the photonics properties of individual [1,2], or interacting phthalocyanine molecules [3]. The presentation will describe the underlying mechanisms giving rise to sub-molecular resolution in STM-induced fluorescence [4, 5] and discuss more recent observation of atomic-scale control of phototautomerization in free-based Phthalocyanine.



REFERENCES

1. B. Doppagne et al. Science 361, 251 (2018)
2. B. Doppagne et al. Nature Nanotechnol.15, 207 (2020)
3. S. Cao et al. Nature Chem. 12, 766 (2021)
4. A. Roslowska et al. Phys. Rev. X 12, 011012 (2022)
5. A. Roslowska et al. arXiv:2305.13157 (2024)