

# Physikalisches Kolloquium



**Thursday, 15.06.2023, 16:15, HS 100**

Reception with coffee & cookies 16:00

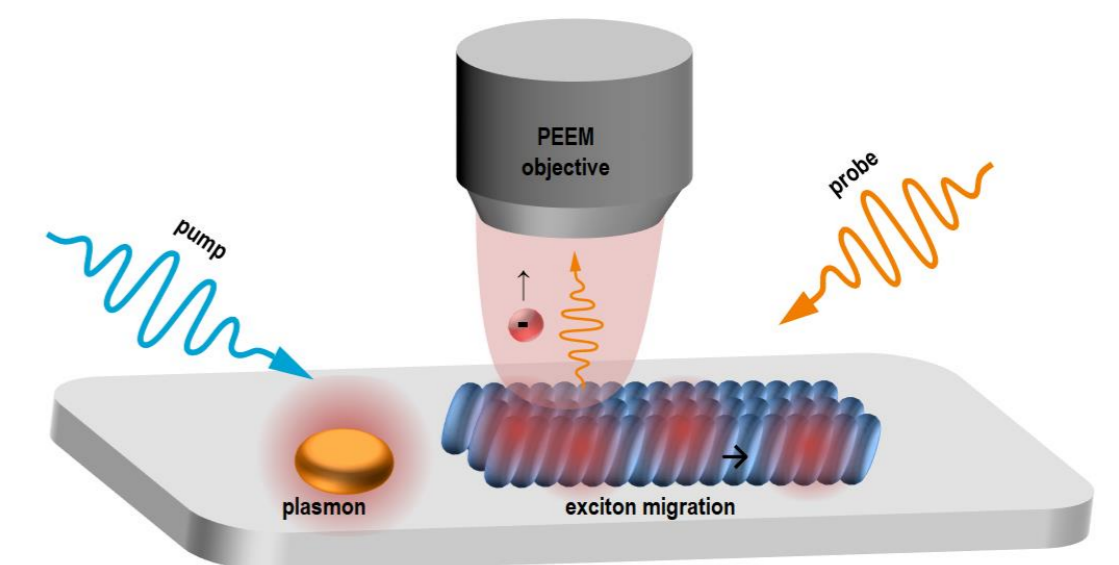
(For university staff: please bring your own cup for sustainability reasons)

**Prof. Dr. Sylvia Speller, University of Rostock:**

## *Localized excitation of dye molecule aggregates via plasmonic nanostructures*

### **Abstract**

In organic molecular crystals electron-hole pairs can be excited and guided to transfer energy or information. Such exciton species, in comparison to electrons or photons, may offer energy-efficient, nanometric alternatives to contemporary electronic circuitries. Localized excitation is a prerequisite to track exciton clouds through molecule aggregate cables and to attain a proof of concept. Surface structures can be prepared on surfaces to fulfill functions such as optical stimulation or electric field hot spots. Options are plasmonic nanoparticles or nanosphere lithography structures. In our studies we dock nanoparticles to molecule aggregates and inspect the spatial dependence of the population of excited electronic states to learn about participation, enhancement, and dynamics of singlet and triplet excitons. To this end microscopy approaches such as photoemission electron microscopy (PEEM) complemented by scanning probe (SPM) and luminescence are employed. The work is part of the collaborative research centers "Light-Matter Interactions at Interfaces (LiMatI)" and "Electrically Active Implants (ELAINE)" at the department of Life, Light, and Matter at University of Rostock.



All of you interested in physics are cordially invited!