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Construction of various molecular dimer systems using single molecule manipulation techniques and their optical characterization

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Electromagnetic interactions between molecules play an important role in various systems such as the operation of optical devices and photosynthesis. However, when considering molecules in close proximity to the nanoscale, there are many degrees of freedom in terms of structure such as intermolecular distance and orientation, and it has been difficult to precisely control them, hindering the realization of detailed understanding and control of intermolecular interactions. Recently, we have been working to construct molecular dimers with well-defined structures by moving and arranging phthalocyanine and naphthalocyanine molecules with atomic precision using the single-molecule manipulation technique of scanning tunneling microscopy (STM). Furthermore, by using spectroscopic measurement techniques that we have developed, we have evaluated the luminescence properties realized in a variety of dimer systems. In the talk, detailed molecular manipulation mechanisms based on theoretical simulations and intermolecular energy transfer will also be discussed.

**主催:九州大学 最先端有機光エレクトロニクス研究センター
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