Unlocking the Full Potential of Organic Molecules by the Strategic Use of Molecular Assemblies

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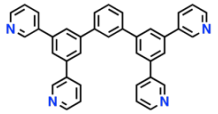
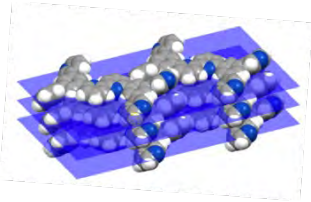
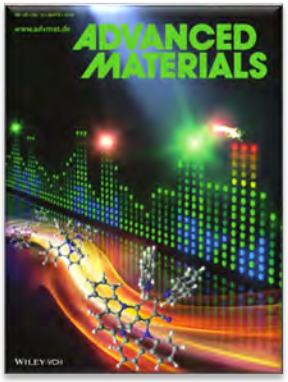
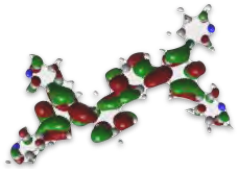
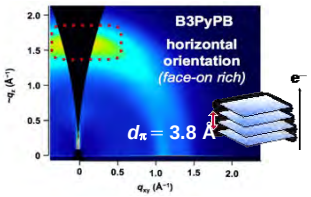
Creation of High Performance Organic Semiconductors



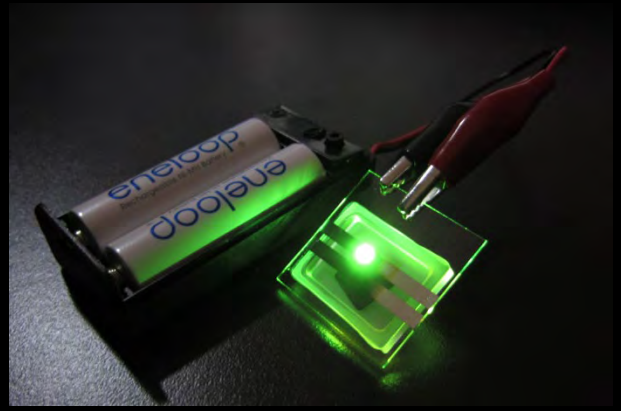


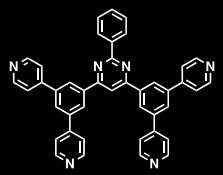




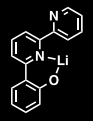


Low-Power-Consumption Organic LEDs and Materials





B4PyPPM



LiBPP

Content:

These functional organic materials are used not as single molecules but as aggregates of molecules in bulk states, such as thin films and crystals. However, the relationship between their structure at the molecular level and their function as bulk materials is currently often unpredictable. In contrast to the theories for the solid state physics of inorganic semiconductors, the physics of molecular aggregates, especially for their electronic and optical properties, still remains poorly understood and unexplored. We are interested in Materials Science to unlock the full potential of organic molecules by the strategic use of molecular assemblies realizing high-performance organic semiconductor devices.

Appealing point:

1. Development of high-performance organic semiconductors (OSCs) based on organic synthesis, state-of-the-art organic photonics, and DFT calculations
2. Fabrication of organic LEDs based on the original OSCs realizing low-power-consumption and long lifetime at practial high brightness

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