

Abstract Submitted
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Exploring Nanophotovoltaic Molecules using STM CHENGGANG TAO, University of California at Berkeley, JIBIN SUN, XIAOWEI ZHANG, R. YAMACHIKA, D. WEGNER, Y. BAHRI, G. SAMSONIDZE, S. LOUIE, T. TILLY, R. SEGALMAN, M. CROMMIE — Composite molecular solar cells are a promising and exciting alternative to traditional silicon or gallium arsenide solar cells, but the power conversion efficiency remains low. In order to further increase this efficiency, a deeper understanding of the microscopic mechanisms at work in organic solar cells is needed. Using scanning tunneling microscopy and spectroscopy we have investigated nanophotovoltaic molecules that combine both donor and acceptor elements. Submolecular spectral resolution reveals the energy level alignment within these composite molecular structures. This information should be useful for understanding the energy conversion pathways within molecular solar cells, and for developing higher efficiency solar cell materials.

Chenggang Tao
University of California at Berkeley

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