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Photo-Activation of Single Molecules and Assemblies on Au{111} YUXI ZHAO, MOONHEE KIM, NATCHA WATTANATORN, Department of Chemistry and Biochemistry, University of California, Los Angeles, JEFFREY SCHWARTZ, Department of Physics & Astronomy, University of California, Los Angeles, HONG MA, ALEX JEN, Department of Materials Science and Engineering, University of Washington, PAUL WEISS, Department of Chemistry and Biochemistry, University of California, Los Angeles — Understanding electron transfer at the molecular level is critical to the rational design and performance improvement of organic optoelectronics and photovoltaics. The behavior of photoactive molecules depends critically on their local environment and defects present in the surface. Here, we use a custom-built, laser-assisted scanning tunneling microscope to probe the photocurrent of isolated anthracene derivates on  $Au\{111\}$ . The photocurrent originates from charge-transfer transitions of anthracene into an excited state when illuminated by an evanescent field. The influence of the image potential states on terraces and at defects in the gold surface on photo-induced charge transfer will be discussed.

> Yuxi Zhao Department of Chemistry and Biochemistry, University of California, Los Angeles

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