

Electronic Supplementary Information

Photoconversion of 6, 13- α -Diketopentacene Single Crystals Exhibiting Light Intensity-Dependent Morphological Change

Mitsuaki Yamauchi,^a Yuya Miyamoto,^a Mitsuharu Suzuki,^b Hiroko Yamada,^b Sadahiro Masuo^{*a}

^a Department of Applied Chemistry for Environment, Kwansai Gakuin University, 2-1 Gakuen,

Sanda, Hyogo 669-1337, Japan

^b Graduate School of Materials Science, Nara Institute of Science and Technology, Ikoma 630-0192,
Japan

Instrumental Setup and Methods

The μm -sized PDK crystals were placed on a clean glass coverslip, which was set on the stage of an inverted confocal microscope (IX71, Olympus) combining with an AFM system (JPK Instruments, NanoWizard II), as shown in Figure S1.^{S1} As a light source for photoconversion, a 488 nm continuous-wave laser (Cyan-MA5, Spectra-Physics) was used. For the photoirradiation with strong laser intensity with $100 \sim 1000 \text{ kWcm}^{-2}$, the laser beam was focused onto the surface of the single μm -sized PDK crystal with the size of the diffraction limit through an objective lens (100 \times , N.A. 1.40, Olympus). In the case of the laser intensity below 100 kWcm^{-2} , the laser beams was irradiated at the area with 25 μm in diameter. For the UV/vis absorption spectrum measurement of a single crystal under the optical microscope, halogen lamp of the microscope, that is, Köhler illumination system, was used as the incident light. The spectrum was measured using a spectrometer (SpectraPro2358, Acton Research Corporation) with a cooled CCD camera (PIXIS400B, Princeton Instruments), as shown in Figure S1. The all spectra were obtained by the accumulation time of 5 s.

The morphological changes during photoirradiation were analyzed by atomic force microscopy (AFM). All measurements were performed at room temperature in a dark room.

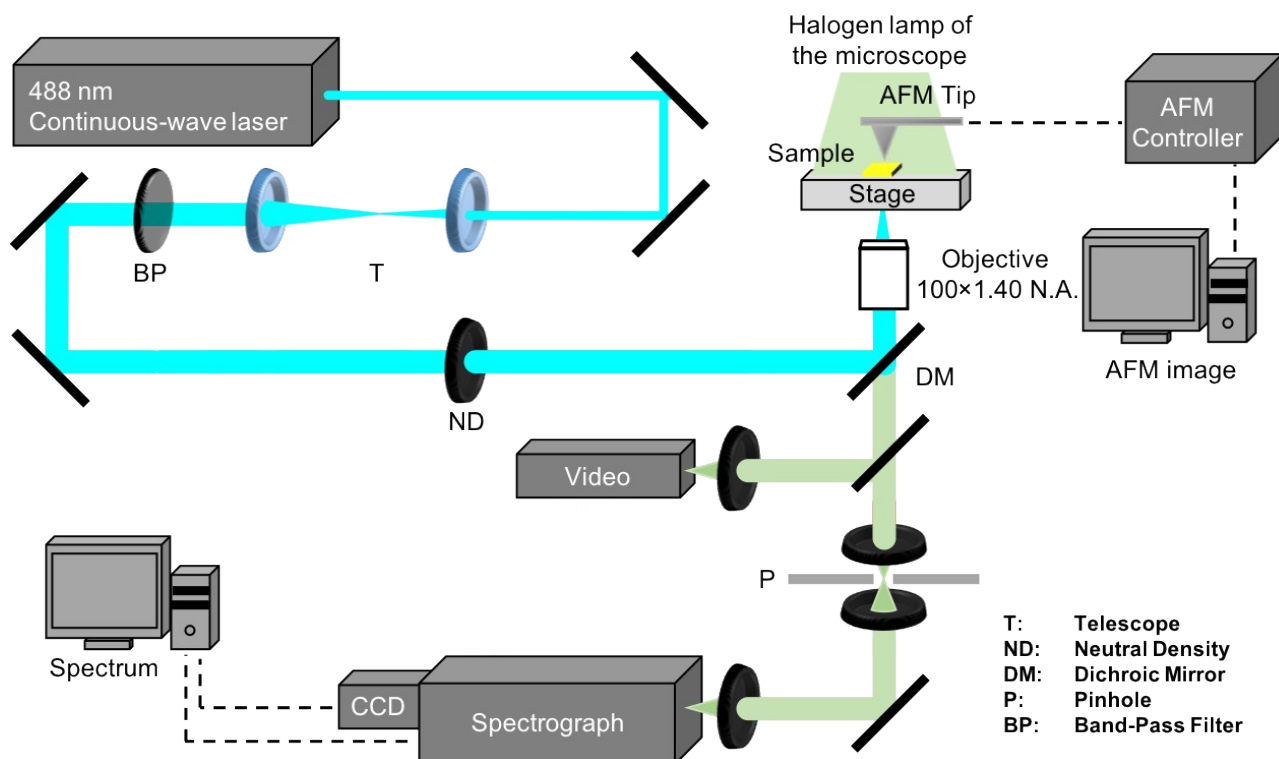


Figure S1. Schematic representation of experimental set-up for confocal microscope combining with AFM system.

Reference

[S1] S. Masuo, K. Kanetaka, R. Sato and T. Teranishi, *ACS Photonics*, 2016, **3**, 109–116.