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Construction of pcAFM module to measure photoconductance with a nanoscale spatial resolution; Ultramicroscopy 108 (2008) 1090–1093

Abstract
A photoconductive atomic force microscopy (pcAFM) module was designed and the performance was tested. This module consisted of three units: the conductive mirror-plate, the steering mirror and the laser source. The module with a laser irradiation unit was equipped to a conventional conducting probe atomic force microscopy (CP-AFM) instrument to measure photoconductance in a nanoscale resolution. As a proof-of-concept experiment, the photoconductance of aggregated fullerene on indium tin oxide (ITO) substrate was measured with this module. The electrical signals (currents) of aggregated fullerene under the conditions of laser on/off at about 10V sample bias voltage were -100 to -160 nA and 0 to -20 nA, respectively. Results indicated that the pcAFM with this module allowed one to observe photoinduced changes of electrical properties in nanodevices with nanoscale spatial resolution.