

### Direct laser writing of humidity sensors on flexible substrate

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We employed a laser induced graphitization (LIG) method to fabricate humidity sensors directly on various organic substrates. The irradiation of CO<sub>2</sub> laser on the flexible substrates such as polyimide and cellulose nanofiber films produced conductive graphitic carbonaceous layers without any chemical treatment. Exposure of the sensor to humidity induced changes in electrical resistance, which was measured using a homebuilt device. The sensitivity and response time of the device were comparable to those of commercial humidity sensors. However, LIG-based sensors are expected to be widely used in the future due to the easy and economic manufacturing.