

Laser printing of organic electronics and sensors

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This work presents the use of the Laser Induced Forward Transfer (LIFT) process as an advanced tool for organic electronics and biosensors fabrication. LIFT is an alternative micro patterning technology that employs pulsed laser irradiation for the selective deposition of a liquid or solid target material onto a receiving substrate. Laser Induced Forward Transfer (LIFT) is a non-contact direct printing method that can deposit patterns of functional materials, in liquid or in solid phase, including organic, carbon based nanomaterials, biological compounds, metal nanoparticles, and dielectrics at different kind of substrates including flexible materials. More specifically, LIFT process is used for direct printing of Ag based nanoparticles, organic semiconducting materials for organic transistors and biomaterials (enzymes and photosynthetic proteins) for environmental biosensors fabrication. The use of LIFT revealed the possibility of direct immobilization of the biomaterials onto the surface of the sensors without the use of chemical linkers.