ISTITUTO ITALIANO
DI TECNOLOGIA

TITLE

Superhydrofobic Multielectrode EWOD (ElectroWetting On Dielectric)

INVENTORS

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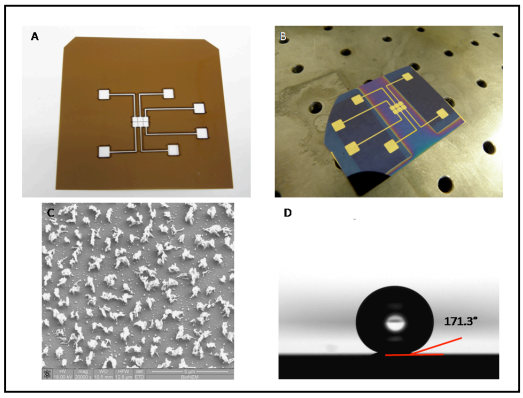
DESCRIPTION

The Nano Structures department at IIT has developed the SHEWOD (SuperHydrophobic EWOD) device, concerning the fabrication of a microfluidic EWOD (ElectroWetting On Dielectric) device for performing manipulation of aqueous solution droplets. The major advance of the system is the integration of a superhydrophobic surface which enhances the mobility of the droplets on the substrate by means of electrical fields. The development of SHEWOD device requires two separate phases of microfabrication. The first step is a process for the building the electrodes on a Si substrate, while the second one is a microfabrication process to coat the Si chip with a superhydrofobic, thickness-tunable, nano-structured PMMA surface.



APPLICATIONS

The SHEWOD device can be successfully used, for instance, in the following application fields

- Evaluation of structural information about inorganic and biological subjects/drugs for research purposes using droplet mixing strategies by biomedical or pharmaceutical companies.
- Study of organic (proteins/peptides/living matter etc.) and inorganic (colloids/biomineralization) droplet mixing/evaporation by means of x-ray diffraction and spectroscopic techniques. Integration of droplet mixing/evaporation devices with inkjet deposition systems.

KEYWORDS

electrowetting on dielectric, ewod, superhydrofobic

BIBLIOGRAPHIC DATA TO2012A000121

Dispositivo ElectroWetting-On-Dielectric superidrofobico provvisto di una configurazione di elettrodi multipli

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