UNIONE EUROPEA
Fondo Sociale Europeo

Ministero dell'Istruzione, dell'Università e della Ricerca

PON RICERCA E INNOVAZIONE 2014 - 2020

PhD in Physics - XXXII cycle

Fs-laser based smart procedures for the fabrication of polymeric Lab on a Chip devices

Industrial Partner

STMicroelectronics

STMicroelectronics is a multinational electronics and semiconductor manufacturer. ST research division is dedicated to the developing of miniaturized biomedical devices and Lab on a Chips.

Within the PhD project, ST-Lecce collaborate in the designing, validation and bonding of the prototype of polymeric Lab on a Chip

International Partner

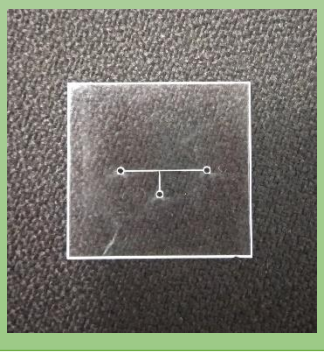
University of Strathclyde Glasgow

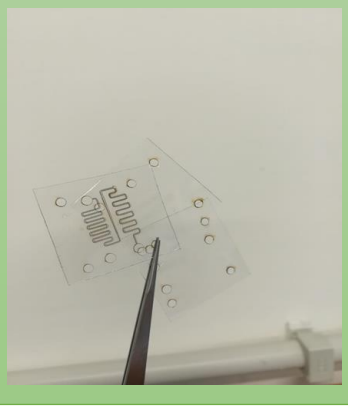
The Centre for Microsystems and Photonics (CMP) at University of Strathclyde has extensive expertise in the design, fabrication and testing of MEMS, microsensors, microfluidics, optoelectronic and photonic sensors and systems.

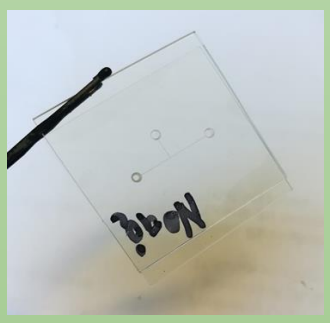
Within the PhD project, CMP will collaborate in the testing and studying of the polymeric Lab on a Chip with biological samples

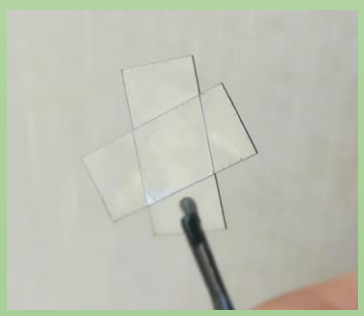
Description of Activities

Two different approaches are developed for the fabrication of polymeric LoC based on fs-laser technology.
(1) direct laser ablation of PMMA and
(2) laser cutting of thin PC to build a multilayer chip









Thermally solvent assisted PMMA-PMMA and PC-PC bonding methods are tested for assembling the polymeric chip. The sealing of the device is carried out by leakage tests using dyed liquid.

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