

DIPARTIMENTO DI CHIMICA



SAPIENZA
UNIVERSITÀ DI ROMA

Seminario di Dipartimento

giovedì 23 giugno, ore 15.00 aula Parravano (Ed. Cannizzaro)

Biomedical Microsystems for Interaction at a Cellular Level

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ABSTRACT

The applications of microsystems in the biomedical field are indeed remarkable and continuously evolving thanks to recent extraordinary progresses in the area of micro-manufacturing technologies, capable of manufacturing devices with details in the usual range of 1–500 μm . As living organisms are made up with cells, whose overall dimensions typically range from 5 to 100 μm , micro-manufactured devices (with details precisely in that range) are very well-suited for interaction at a cellular level thus promoting innovative diagnostic and therapeutic approaches. This lecture provides an overview of the more relevant micro-manufacturing technologies with special application in the development of advanced micro-medical devices and in the manufacture of rapid prototypes for the biomedical field. Several cases of study, linked to microfluidic biodevices for disease modelling, to cell culture platforms for understanding cell behaviour, to labs-on-chips and organs-on-chips and to tissue engineering scaffolds, all of them promoting special cell responses, are also explained. The possibility of combining technologies for the promotion of multi-scale and biomimetic approaches is also analysed in detail and some current research challenges are also discussed.

Proponente Andrea Barbetta