



## ***Symposium F : Printed Functionalities - Printable Functional Materials and Devices***

### **Scope of the Symposium**

Printable functional materials allows exploiting its functionalities in active coatings and printed devices, joining nowadays compositional and structural functionalities through a layer-by-layer (LbL) process by Additive Manufacturing (AM). In the case of printable electronics, using widely available printing technology to create electronics on all sorts of low-cost materials, leads, for instance, to light printable flexible batteries that may allow embedded or wearable electronics. Printed functionalities become a promising field that has been evolving a lot, originating sub-areas such as, for example, to explore functionalities printed on paper substrates, going up to the printing of living tissues. Today, new horizons are opening up for the most diverse functional printable materials. Drop-on-Demand (DoD) printers, until recently with limited drop resolution of around 1 pL, can now control drops of the order of 0.1 fL, thus allowing them to reproduce biological microstructures by AM in bioinspired printed coatings. Intelligent papers have active parts applied or printed on flexible substrates, for mass production of low-cost devices for several applications. Functionalized fluids used as inks to produce these devices, becomes sometimes molecular devices or nanostructured devices carried as a printable fluid. The present symposium intends to receive themes involving the most diverse areas of printed functionalities, from the most well-established, as flexible electronics, including flexible batteries and devices on paper substrates, to printing of cells, tissues, and biomaterials in general, going to more recent lines, such as printable bioinspired surfaces in high resolution, 3D DoD printing and software development for the area, as well as the newest 3D printing techniques for AM, such as Two-Photon Polymerization (TPP) and Femtosecond Projection Two-photon Lithography (FP-TPL), as the newest high-speed 3D printing technology.

### **Abstracts will be solicited in (but not limited to) the following areas**

- *Printed Electronics*
- *Printed Functionalities on Paper Substrates*
- *Printable devices*
- *Inkjet DoD (2D, 3D)*
- *Hybrid bioprinting cells, tissues and materials*
- *Printable molecular fluids*
- *Software for Materials Printing*
- *Printable Bioinspired Coatings*
- *Bioprinting and Bioinks*
- *Recent 3D printing techniques (FP-TPL, TPP, etc.)*
- *Molecularly Imprinted Polymers (MIPs)*
- *Vat Photopolymerization 3D Printing (SLA, DLP, etc.)*

### **Tentative list of invited speakers (To be confirmed)**

**Dr. Ralf Zichner** (*Fraunhofer ENAS*) **Dr. Brian Derby** ( *The University of Manchester*) **Dra. Janaina de Andrea Dernowsek** ( *Centro de Pesquisas Renato Archer - CenPRA*) **Prof. Dr. Shih-Chi Chen** (*The Chinese University of Hong Kong*) **Carlos Cesar Bof Bufon** (*Brazilian Nanotechnology National Laboratory - LNNano*) .

### **Symposium Organizers**

**Petrus Santa Cruz** (*Universidade Federal de Pernambuco*) **Walter Mendes de Azevedo** (*UFPE*) .

**XIX Brazil MRS Meeting**