

1 RESEARCH FELLOWSHIP: ORGANIC SEMICONDUCTING CRYSTALS: CHARACTERIZATION OF THEIR PHOTO-PHYSICAL, ELECTRONIC TRANSPORT AND MORPHOLOGICAL PROPERTIES TOWARDS THE FABRICATION OF IONIZING RADIATION SENSORS

Position: 3-year faculty research fellowship (Ricercatore a Tempo Determinato –RTDa) at the Department of Physics and Astronomy, University of Bologna, Italy. Annual gross total amount equal to € 34.898,00.

Field(s): experimental characterization of organic semiconductors, analyses of opto-electronic properties, electronic transport, photo-physical properties, scanning probe microscopy, development of solid state radiation detectors.

Starting date: April-May 2014

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Web-site: www.physics-astronomy.unibo.it/en/research/areas/condensed-matter-physics/phos-lab/research/organic-semiconductors-and-devices

Web-site: www.iflexis.eu

Job description:

The foreseen research activity is centered on the experimental characterization of the photo-physical, morpho-structural and electronic transport properties of organic semiconducting single crystals. The aim is to deepen the understanding of charge generation, recombination and transport in organic molecular solids. The attention is focused on the study of their electronic and optical response to various types of ionizing radiation (X-rays, alpha particles, electrons and neutrons) with the primary goal to develop radiation detectors capable of operating at room temperature, integrated in organic electronic circuits fabricated on flexible, large area substrates. The following skills will be particularly valued:

- experimental characterization of the electrical transport properties of organic materials and devices
- skills and competences in scanning probe microscopy (AFM, STM, Conductive-AFM, SKPM)
- know-how in the photo-physics of the interaction between radiation-organic materials
- solid-state radiation detectors: physical processes controlling the charge generation, recombination, transport and collection.
- fabrication skills in organic electronic devices

Perspective candidates have a Ph.D. in either physics, materials science, electronic engineering or related disciplines and a strong background semiconductor physics and organic electronics. Qualified candidates have strong skills in the experimental characterization of semiconductor and documented experience in independently running laboratory activities and small-scale projects. The ideal candidate is highly motivated, enthusiastic, is fluent in English and possesses good interpersonal skills.

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