

PUBLIC SELECTION BASED ON QUALIFICATIONS AND INTERVIEW FOR THE AWARDING OF NO. 1 GRANTS LASTING 24 MONTHS FOR CONDUCTING RESEARCH IN ACCORDANCE WITH ART. 22 OF LAW OF 30.12.2010 NO. 240 AT THE DEPARTMENT OF ENGINEERING AND APPLIED SCIENCES OF THE UNIVERSITY OF BERGAMO (ACADEMIC RECRUITMENT FIELD 03/B2 – PRINCIPLES OF CHEMISTRY FOR APPLIED TECHNOLOGIES – ACADEMIC DISCIPLINE CHIM/07 – PRINCIPLES OF CHEMISTRY FOR APPLIED TECHNOLOGIES)

announced with decree of the Rector Rep. no. 665/2016 of 20.12.2016 and posted on the official registry of the University on 20.12.2016

### **RESEARCH PROJECT**

#### ***“Synthesis and characterization of hybrid materials for wearable sensors”***

##### **Project description**

The research carried out within this project consists of wearable sensors for mobile health applications. The candidate will be involved in the study, the synthesis and characterization of molecules useful for the development of chemical sensors integrated on macromolecules of natural origin (i.e. cellulose) or synthetic (i.e. polyester). The research work involves the development of different types of wearable sensors as a function of physiological parameters to be monitored, in particular for the continuous monitoring of sweat during physical activity. The functionalization of the flexible surface will be implemented through nanosized films synthesized by sol-gel. In fact, the realization of nanosized films is an innovative approach for the preparation of flexible materials sensitive to different analytes, allowing also the development of innovative processes that allow to raise considerably sensitivity and selectivity. These sensors will be integrated with a data acquisition system to allow the user to monitor their physical condition and to be driven and motivated to adopt and maintain healthy lifestyles.

Expected results from the research:

1. Analysis of the state of the art about opto-electronic device sensors.
2. Definition of the synthesis conditions and characterization of hybrid thin films able to recognize specific analytes.
3. Development of wearable sensor-based systems for health monitoring.