

ABSTRACT

The main purpose of the following thesis is the study of basic concepts agendas around a) Nanotechnology, b) the middle connection between high & academic education and in the field of nanotechnology, c) the implementation of a e-Learning Platform of Remote Experiment, d) the study of new characterization techniques (AFM, STM, Station Probe), e) extracting research results to improve the performance of integrated organic electronic devices.

In the first instance designed and implemented educational platform bearing interconnected scientific instrument for educational purposes (Nanoeducator). The scientific apparatus Nanoeducator is oriented to perform measurements AFM / STM

Then, the emphasis on measurement by atomic microscopy instruments (like Nanoeducator, Solver & Ntegra) and performed comparative measurements between the areas to verify the measurements results. Thrived materials as a) wet techniques, b) in a chamber ultra-high vacuum c) with gravur printing machine, and compared the electrical properties by techniques AFM / STM & Probe Station.

Study of micro-electrical properties of conductive polymer material (PEDOT: PSS formulation PH1000, Heraeus), and conclusions were reached on the work function of the material, with the help of approximate method of characteristic curves IV received by atomic force microscopy.

The work function of materials is important because it determines the ability to interface with other materials if they coexist or are part boundary interface. In conclusion, the calculated work output PH1000, and found platinum tip with 4.845eV, 4.733eV, with gold tip, 3.795eV with tip TiN.