

CARBON NANOTUBE BASED ELECTROCHEMICAL SENSORS

B. Pérez^{1,2}, Salvador Alegret², M. del Valle² A. Merkoçi^{1,2}

1 Nanobioelectronics & Biosensors group, Institut Català de Nanotecnologia, Campus UAB

2 Grup de Sensors & Biosensors, Departament de Química

Universitat Autònoma de Barcelona

08193 Bellaterra, Catalonia, Spain

E-mail: brizaries_77@yahoo.com.mx

Since their discovering the carbon nanotubes (CNTs) have generated great interest for various applications based on their field emission and electronic transport properties, their high mechanical strength and their chemical properties. From this arises an increasing potential for use as field emission devices, nanoscale transistors, tips for scanning microscopy or components for composite materials. CNTs are one of the most commonly used building blocks of nanotechnology.

Additionally CNTs offer significant advantages in sensor applications due to their high surface area, accumulation capability, conductivity, minimization of surface fouling and electrocatalytic activity. The unique properties of CNTs make them extremely attractive for the fabrication of electrochemical (bio)sensors. CNTs can enhance the electrochemical reactivity of biomolecules and promote the electron–transfer reactions of proteins.

Recent results obtained by using CNT modified sensors for several electroactive analytes in comparison with others non-modified carbon electrodes including their integration into “Lab-on-a-chip” systems will be presented.