

7<sup>th</sup> International Conference on

# Smart Materials and Structures

July 02-03, 2018 | Vienna, Austria

## Fabrication of glucose biosensors via PEDOT nanofibers

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Herein we present a simple, low cost approach for production of PEDOT nanofiber biosensors by using simple techniques. The PEDOT nanofibers were produced by chemical vapor polymerization of EDOT on FeCl<sub>3</sub> containing electrospun PAN nanofiber mats. Fabrication of biosensors was achieved through loading of GOx on the nanofibers which were then entrapped by glutaraldehyde. The optimum conditions for operating the biosensor (based on hydrogen peroxide production) were determined by considering parameters such as; pH, working potential, the amount of entrapped enzyme. For each biosensor the current response ( $\Delta I$ ) versus glucose concentrations (mM) calibration curves were plotted. Sensitivity, linear range, LOD,  $K_m$  and  $I_{max}$  values were determined and the stabilities of all the sensors were investigated. For example, PEDOT-NFs/GOx-3 nanofiber biosensor showed good sensitivity (74.22  $\mu A/mM.cm^2$ ) and LOD (2.9  $\mu M$ ) with a response time of 2–3 s without displaying an interference effect at 0.6 V. Our study showed the improved analytical performance of the GOx sensors upon utilization of biocompatible, large surface area nanoporous PEDOT nanofibers.

### Recent Publications

1. Çetin Z M and Camurlu P (2017) Utilization of polypyrrole nanofibers in glucose detection journal of the electrochemical society 164:B585.
2. Yang G, Kampstra K L and Abidian M R (2014) High-performance conducting polymer nanofiber biosensors for detection of biomolecules Adv. Mater. 26:4954–4960.
3. Laforgue A and Robitaille L (2010) Deposition of ultrathin coatings of polypyrrole and poly(3,4-ethylenedioxythiophene) onto electrospun nanofibers using a vapor-phase polymerization method chem. Mater. 22:2474–2480.
4. Laforgue A and Robitaille L (2008) Highly conductive PEDOT nanofibers obtained by combination of electrospinning and vapour-phase polymerization polymer preprints 49: 624.

### Biography

Pinar Camurlu received her BSc (1999), MSc (2001) and PhD (2006) Degrees from the Department of Chemistry at Middle East Technical University in Ankara, Turkey. She has been working in the Department of Chemistry at Akdeniz University (Antalya, Turkey) since 2007. Her research is focused on the design and synthesis of functional conjugated polymers and their applications such as, electrochromic devices, light emitting diodes, biosensors. She has published 50 papers in SCI journals and is a Co-Author of three international scientific book chapters.

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