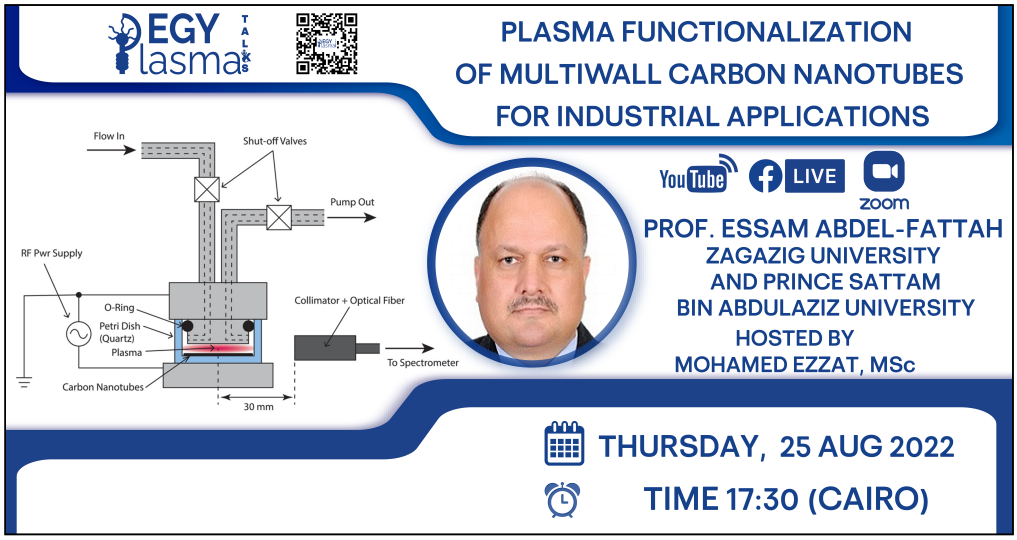


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**Title**: Plasma Functionalization of Multiwall Carbon Nanotubes for Industrial Applications

**Speaker**: Prof. Essam Abdel-Fattah (Zagazig University and Prince Sattam bin Abdulaziz University )

**When**: 2022-08-25 17:30:00 - **Hosted by**: Mohamed Ezzat, MSc

**Abstract**: In this work, we introduce a simple route to functionalize MWCNT using plasma technology. The plasma (RF-DBD) was characterized by optical emission spectroscopy OES. The plasma-treated MWCNTs have been characterized by means of SEM/TEM, X- XPS, Raman spectroscopy and Xray diffraction XRD. The results of OES shows species O, OH, N2, CN, C2 and H?, confirming the rich plasma environment and active interaction between the MWCNT and plasma species. Tvib and Trot were estimated by comparing the experimental and simulated spectrum. The density of N radicals in the Ar-N2 plasma was estimated by optical actinometry technique. The XPS results revealed that various functional groups, based on the gas type/composition, exists on MWCNTstreated in plasma mixture. The integrity of the plasma treated MWCNTs remained undamaged as observed by TEM images and XRD results. The plasma treatment of MWCNT improved their dispersion within polymer matrix, and hence improved the physical characteristics of the MWCNT/Polymer composite.

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