Using Carbon-Dots as initiators for the polymerization process

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Abstract:

I will present results obtained in my group about the synthesis of polymers using both carbon dots (CDs) and UV light as initiators. Other cases in which, the carbon dots were used without UV light will also be reported. The CDs produce free radicals in the presence of UV light, indicating their role as initiators. The surface of CDs has many unshared or unpaired electrons, making it negatively charged. My presentation will focus on the use of CDs for the formation of polymers from monomers containing various functional group. The properties of the synthesized CDs and the polymers obtained from the various monomers were characterized by various analytical techniques, including Fourier-Transform Infrared (FTIR) spectroscopy, X-ray Diffraction (XRD), Thermogravimetric Analysis (TGA) and Solid-State NMR spectroscopy. This polymerizationtechnique is of interest both from the scientific aspect and for its applicative potential. The synthesized polymers were investigated for their various applications such as antibacterial, adsorption of organic dyes and hazardous materials.

Biography:

Prof. (Em.) Aharon Gedanken obtained his Ph. D. degree from Tel Aviv University, Israel. After his postdoctoral research at USC in Los Angeles. He got a lecturer position at BIU on Oct. 1975. In 1994 he switched his research interest from Spectroscopy to Nanotechnology. His special synthetic methods of nanomaterials include: Sonochemistry, Microwave Superheating, Sonoelectrochemistry, and Reactions under Autogenic Pressure at Elevated Temperatures (RAPET). Since 2004 he is mostly focused on the applications of nanomaterials. Gedanken has published 840 per-reviewed manuscripts in international journals. His H-Index is 93. He was a partner in

five EC FP7 projects one of them, SONO, was coordinated by him. This project was announced by the EC as a "Success Story". He was the Israeli representative to the NMP (Nano, Materials, and Processes) committee of EC in FP7. He was awarded the prize of the Israel Vacuum Society in 2009 and the Israel Chemical Society for excellence in Research in Feb. 2013.

Publication of speakers:

1. Silver and gold doped hydroxyapatite nanocomposites for enhanced bone regeneration.Kumar VB, Khajuria DK, Karasik D, Gedanken A.Biomed Mater. 2019 Jul 8;
2. Zinc-Doped Copper Oxide Nanocomposites Inhibit the Growth of Pancreatic Cancer by Inducing Autophagy Through AMPK/mTOR Pathway.Li X, Xu H, Li C, Qiao G, Farooqi AA, Gedanken A, Liu X, Lin X.Front Pharmacol. 2019 Apr 2;10:319
3. Fluorescent metal-doped carbon dots for neuronal manipulations.Kumar VB, Kumar R, Gedanken A, Shefi O.Ultrason Sonochem. 2019 Apr
4. Imparting Pharmaceutical Applications to the Surface of Fabrics for Wound and Skin Care by Ultrasonic Waves.Gedanken A, Perkas N, Perelshtein I, Lipovsky A.Curr Med Chem. 2018

Citation: Aharon Gedanken ref;Using Carbon-Dots as initiators for the polymerization process; Smart Materials 2020; February 19-20 2020, Paris, France