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Synthesis of nanomaterials for drug delivery and cancer biomarkers and therapy

Badis Bendjemil^{1,2}, Ahmed Belbah², Nasr-eddine Chakri¹, Abdelaziz Lankar³ and Franck Cleymand⁴

¹University Badji Mokhtar, Algeria

²University of 8 Mai 1945 Guelma, Algeria

³CHU Annaba, Algeria

⁴Institut Jean Lamour, France

In this research, combustion synthesis in a self-catalytic propagation high temperature synthesis mode (SCHS) and arc discharge technique was used with the aim to synthesize 1D carbon nanostructures, by the sodium Azide NaN_3 reduction of the Teflon PTFE $(\text{CF})_n$, in argon, at ambient pressure of 1 MPa. In the same time, several possible catalysts were tried like such as $\text{Fe}(\text{CO})_5$, $\text{Co}(\text{CO})_5$, $\text{Ni}(\text{CO})_5$ powders. Through the presence of NaF in the product, the deep reduction of PTFE is shown in order to produce fullerenes and carbon nanotubes. On one hand, we obtained nanocarbon reinforced iron nano-composites by nanocarbon encapsulated iron metal nanoparticles in nanocarbon coke in our samples with high yield. This opens the process to new possible and nanobiotechnology applications as markers and therapy of cancer and in drug delivered by using nanocarbon containers encapsulated (ferromagnet is the heater of cancer tissue, markers and drugs). On the other hand, the functionalized nanocarbon by magnetic hydroxipatite and cellular growth near nanocarbon for neural prosthetics is now in progress.

Badis23@gmail.com

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