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Carbon Based Nanostructures via RF plasma in liquids FEISAL KROUSHAWI, ALI PANAHPOUR, MOHAMAD MAHDI MAJIDOF, HAMID LATIFI, Laser and Plasma Research Institute, Shahid Beheshti University, Tehran, Iran — In this paper we introduce a simple method for producing carbon based Nanostructures RF discharges in Liquid Hydrocarbons.The setups include two immersed brass electrodes in the liquid. RF power supply is connected to the plasma chamber via impedance matching box. After introducing RF wave to the powered electrode, bright plasma is initiated near this electrode. The RF source is operated at 85MHz and up to 1500 watt output to excite the plasma. Ethanol, Methanol and acetone are used in the experiments. We used the liquid because of suppressing effects of liquid in particle formation processes and also because of its high density where reaction rates are high. The plasma is investigated by optical emission spectroscopy and the products are analyzed by SEM, XRD and Raman Spectroscopy methods. The Images shows that Carbon Nanoparticles in the range of s 50-150nm is produced. This range is correlated with input power, liquid type and liquid temperature. The optical emission spectroscopy revealed the existence of radicals H, OH. This method of Nanoparticle generation is fast, simple and inexpensive.

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