Effect of electrical discharge on laser produced nanoparticles in liquid

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Abstract

Laser produced nanoparticles have great application potential [1]. The production of gold and silver nanoparticles (NPs) (see figure 1 and 2) with controlled morphology in an aqueous solution of sodium dodecyl sulfat (SDS) by Nd:YAG laser pulses superimposed with high voltage DC electrical discharge is reported. The relationship between supercontinuum (SC) emission and absorption spectrum of oxide NPs has been explored by high resolution spectrometers Additionally the transformation of NPs into fractal-like structures has been examined. There are many application of nanoparticles such as Surface Enhanced Raman Spectroscopy (SERS) and Laser Induced Breakdown Spectroscopy (LIBS).

Fig. 1: Nanoparticles in liquids

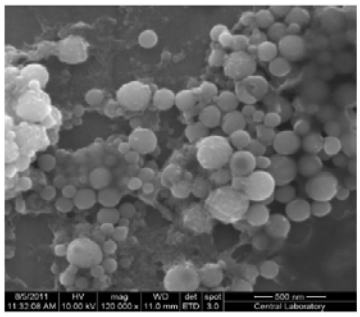

Fig. 2: SEM images of *laser produced nanoparticles*

References

1. [1] E. Akman et al, *Fragmentation of the gold nanoparticles using femtosecond Ti:Sapphire laser and their structural evolution,,* Optics &Laser Technology **49** 156-160 (2013)