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# Morphology and Optical properties of (Fe-Cd) core-shellby Laser Ablation in Ethanol

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**Abstract:**Laser ablation in liquid has become a more important technique for the preparation of NPs. This paper report a new study on the generation of (Fe @ Cd) core-shell NPs by ablation of metal targets in aqueous environment by Q-switch Nd-YAG laser (λ=1064 nm) immersed in ethanol .Solution of NPs is found a stable in the colloidal shape for a long time. The Surface topography studied by Transmission Electron Microscopy TEM, and shape were measured by using Scanning Electron Microscope SEM, shows spherical shape , UV-Visible spectroscopy has been employed for the optical properties measurements. The absorption coefficient, refractive index and extinction index was studied. The results showed absorption of cadmium pushed towards the highest wavelengths (red shift) where any SPR pushed to (274nm) due to the effect of cadmium shell (Cd shell), which dominates on the effect of the core (Fe core). Spherical colloidal nanoparticles had showed with size less than (10nm).
**Keywords**:Morphology and Optical properties, Fe-Cd, core-shell, Laser Ablation.

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