

# FABRICATION OF METAL NANOPARTICLES BY LASER ABLATION

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## TÓM TẮT:

We study to produce metal nanoparticles by laser ablation. Using Nd:YAG laser (Quanta Ray Pro 230-USA) in Q-switch mode. The Ag, Au, Cu nanoparticles were prepared successfully by laser ablation from metal plate in several surfactant solutions. The average size, the size distribution and the plasmon resonance absorption spectrum of the metal nanoparticles were observed in different laser ablation procedures such as different laser intensities and different laser irradiation times. We also studied laser induced particle size control by plasmon resonance. Using the second harmonic wavelength (532nm) of Nd:YAG laser which is near the plasmon resonance absorption of gold nanoparticles (520nm) we can control average size of gold nanoparticles and produce gold nanoparticles with average size from 3 to 7nm. The experimental results were in good agreement with theory and showed advantages of the laser ablation method.