

## Applications of Nanoparticles via Laser Ablation in Liquids: A Review

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**Abstract :** Laser ablation of any solid target in the liquid leads to fabricate nanoparticles (NPs) with metal or different compositions of materials such as metals, alloys, oxides, carbides, hydroxides. The fabrication of NPs in liquids based on laser ablation has grown up rapidly in the last decades compared to other techniques. Nowadays, laser ablation has been improved to prepare different types of NPs with special morphologies, microstructures, phases, and sizes, which can be applied in various fields. The paper reviews and highlights the different sizes, shapes and application field of nanoparticles that are produced by laser ablation under different liquids and materials. Also, the paper provides a case study for producing a titanium NPs produced by laser ablation submerged in distilled water. The size of NPs is an important parameter, especially for their usage and applications. The size and shape have been analyzed by SEM, (EDAX) was applied to evaluate the oxidation and elements of titanium NPs and the XRD was used to evaluate the phase composition and the peaks of both titanium and some element. SEM technique showed that the synthesized NPs size ranges were between 15-35 nm which can be applied in various field such as annihilator for cancerous cell etc.

**Keywords :** nanoparticles, laser ablation, titanium NPs, applications

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