**Laser Ablation Assisted Fabrication of Silver Nanoparticles based Nanofluids for Concentrated Solar Power Application.**

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1. **Abstract**

Nanofluids are new class of conventional heat transfer fluids which could increase the efficiency of the concentrated solar power systems (CSP) to provide cost-competitive electrical energy [1]. By adding nanoscaled particles in their metallic or oxide form in suspension to a conventional heat transfer fluid, a nanofluid with enhanced thermophysical properties could be attained [2]. To meet the industrial demand of high performance nanofluids, succesful and cost-effective fabrication methods should be adopted for creating well dispersed and stable suspensions of nanoparticles in liquids. This study reports on the preparation of Silver Nanoparticles in ethylene glycol (AgNPs/EG) based nanofluid by using a one-step pulsed Nd:YAG laser ablation method to ablate the surface of pure silver target in ethylene glycol. Structural and morphological analysis confirmed the fabrication of pure AgNPs with average size of ~ 12 nm. The thermal conductivity measurements of AgNPs/EG based nanofluid were conducted in temperatures ranging between 25°C and 45°C. Remarkable enhancement up to ~30% in the thermal conductivity of AgNPs/EG nanofluid was observed compared to EG base fluid.

1. **References**

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