

Thermal diffusivity measurement of copper nanofluid using pulsed laser thermal lens technique.

Abstract

The pulsed laser thermal lens technique was used to study the thermal diffusivity of fluids containing copper nanoparticles (Cu-NPs) prepared by γ -irradiation method. The samples were prepared for the different concentrations of Cu precursor at 20 KGy dose. A Q-switched Nd-YAG pulsed laser of wavelength 532 nm was used as an excitation source and He-Ne laser was used as a probe beam in the present thermal lens experiment. It was found that the thermal diffusivity of the solution depends on the density of Cu-NPs.

Keyword: Copper nanoparticles; Thermal lens; Thermal diffusivity; Pulsed laser.