

Photoacoustic Model Obtained from a Square Periodic Heat Source: Application to Thermal Diffusivity Determination in Solids

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We reported a model obtained by solving the heat diffusion equation with a square periodic heat source. We compared the dependence of amplitude and phase with the frequency, in our model, with those of the conventional model, obtained by solving the heat diffusion equation with a sinusoidal periodic heat source. The results show that our model differs significantly from the conventional model, and when we applied our model to the determination of the thermal diffusivity in solids, we obtained good agreement between these values and the corresponding values reported in literature.