

On the Photoacoustic Signal Generated by Micrometric Objects

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We investigate a theoretical approach of the photoacoustic effect generated by energy deposition at n spherical absorbers dissolved in a non-inviscid fluid. The thermoelastic wave equation [1, 2, and 3] of this system was first solved exactly for one absorber by Green function and convolution methods. Then, by adding the PA pressure of each absorber in different positions, the solution for a monolayer was obtained. Finally, the solution of a bulk system was obtained from the monolayer solution. Using this approach we determined the PA amplitude generated by several arrangements of 10^5 absorbers.

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