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Estimation of the Refractive Index inside Laser-Induced Cavitation Bubble: An Experiment ARIANA SABZEGHABAE, UC Riverside, LUIS FLIPE, CICESE, ENOCH GUTIERREZ HERRERA, GUILLERMO AGUILAR, UC Riverside — An experimental procedure was used to estimate the refractive index changes inside a cavitation bubble. An Nd:YAG laser of 6 ns was used to induce cavitation bubbles inside ethanol. A HeNe continuous laser beam was aimed perpendicular to the pump beam for ray tracing purposes and estimating the refractive index changes inside the cavitation bubble. High-speed photography was used to measure the diameter of the bubbles and monitor the deflection of the HeNe beam. To confirm this analysis, a series of static bubbles with known refractive indices inside PDMS molds were designed. Knowledge about the trend of refractive index changes inside the bubble could give researchers insightful information about the temperature and pressure gradients inside the cavitation bubbles by assuming the ideal gas law.

ariana sabzeghabae
UC Riverside

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