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**Diffusion-driven growth of a spherical gas bubble in gelatin gels supersaturated with air**[1] ERIKO SHIROTA, KEITA ANDO, Department of Mechanical Engineering, Keio University — We experimentally and theoretically study diffusion-driven growth of laser-induced gas bubbles in gelatin gels supersaturated with air. The supersaturation in the gels is realized by using a large separation between heat and mass diffusion rates. An optical system is developed to induce bubble nucleation by laser focusing and visualize the subsequent bubble growth. To evaluate the effect of the gel elasticity on the bubble growth rate, we propose the extended Epstein-Plesset theory that considers bubble pressure modifications due to linear/nonlinear elasticity (in addition to Laplace pressure). From comparisons between the experiments and the proposed theory, the bubble growth rate is found to be hindered by the elasticity.

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