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Generation of mysterious bubbles by irradiation of femtosecond pulses in ultrapure water TAKAYUKI SAITO, MANABU YAMAMOTO, Shizuoka University, SHINGO OISHI, SHIN-ICHIRO AOSHIMA, Hamamatsu Photonics K.K. — The femtosecond pulse laser (fs pulse), which is a high-intensity and ultrashort light pulses, produces the optical nonlinear phenomenon such as multiphoton absorption, and induces the completely new phenomenon which is not obtained by using conventional laser pulses. In this research, fs pulses were irradiated into pure water, and micro bubbles were generated. We conducted time-resolved measurement in order to investigate the process of the bubble generation in detail by using the pump probe method. As a result, it was observed that strong light was emitted in the middle of the region of refractive index changed in the water at 900 ps, and subsequently, a bubble was generated with about 1 ns after the fs pulse irradiation into the water.

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