

Light Scattering and Transmission of Synthesized Opal

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ABSTRACT

We synthesized opal which is an assembly of silica spheres with diameters of submicron. This material has attracted much interest as a photonic crystal. The main peak observed at 822nm in the transmission spectra corresponds to Bragg reflection while 1000 nm dip and 500 nm peak correspond to the interference of the lights resonantly scattered by the fundamental and second harmonic modes, respectively. A streak of scattered light by Ar⁺ ion laser beam is due to the interference of the lights scattered by two silica spheres on the surface. We investigated influence of fermented soybeans on the growth of opal.

Keywords: Opal, Resonant Scattering, Bragg Reflection