Quantum Physics

Collapses and revivals of stored orbital angular momentum of light in a cold atomic ensemble

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We report on the storage of orbital angular momentum of light in a cold ensemble of cesium atoms. We employ Bragg diffraction to retrieve the stored optical information impressed into the atomic coherence by the incident light fields. The stored information can be manipulated by an applied magnetic field and we were able to observe collapses and revivals due to the rotation of the stored atomic Zeeman coherence for times longer than 15 μs.

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