

Abstract Submitted
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The Defect on Electromagnetically Induced Transparency by Optical Pumping¹ CHIN-CHUN TSAI, YUNG-YUNG CHANG, ZONG-SYUN HE, RAY-YUAN CHANG, MING-TSUNG LEE, Department of Physics, National Chung-Kung University, Taiwan, YI-CHIH LEE, Institute of Electro-Optical, National Chung-Kung University, Taiwan — The V-type electromagnetically induced transparency (EIT) in a multi-level system of cesium atom at room temperature has been investigated. A defect on the EIT spectrum due to the optical pumping reducing the depth of transmission window is observed. In this experiment, the frequency of the probe laser is locked to the selected cesium D_2 transition, $|6S_{1/2}, F = 3\rangle \rightarrow |6P_{3/2}, F = 4\rangle$ and the coupling laser scans across the hyperfine transition, $|6S_{1/2}, F = 3\rangle \rightarrow |6P_{3/2}, F = 2, 3, 4\rangle$. The numerical simulations by solving the steady state density matrix, using dressed atom approach and the population transformation due to optical pumping fits well with the experimental profile.

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