

Abstract Submitted
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Diffuse light scattering in a ultracold ^{87}Rb gas under conditions of electromagnetically induced transparency¹ R. OLAVE, A. WIN, Old Dominion University, I.M. SOKOLOV, D.V. KUPRIYANOV, St. Petersburg State Polytechnic University, M.D. HAVEY, Old Dominion University — We report experimental progress in studies of the time-dependence of the intensity of light scattered from an ultracold ^{87}Rb atomic sample under conditions of electromagnetically induced transparency. For these circumstances, the scattered light intensity depends on the spectral portion of the probe beam within the EIT window. For the diffusely scattered probe radiation in the vicinity of the EIT window, the light transport and scattering properties are also modified. In these experiments, the ^{87}Rb sample contains about 2×10^7 atoms and is well-described by a Gaussian radius of 0.26 mm and a corresponding optical depth of about 7. We report and discuss experimental results on the temporal, spectral, and polarization characteristics of the total non-forward-scattered light intensity.

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