

Abstract Submitted
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Comparison of the Dependence of Saturated Absorption Spectra of ^{87}Rb D₂ line on the Beam Size and the Intensity HEUNG-RYOUL NOH, GEOL MOON, HUY DIEP DO, Department of Physics and Institute of Opto-Electronic Science and Technology, Chonnam National University — We measure the saturated absorption spectra of the ^{87}Rb D₂ line by varying the size and the intensity of the pump beam. We found that the increase of the beam size is almost equivalent to the increase of the pump beam intensity. This is because both the beam size and intensity influence the interaction of atoms with the pump laser beam, and especially the variation of the beam size means the variation of the transit time of atoms crossing the beam cross-section. However, we found that there exists difference for the signal of $F_g = 2 \rightarrow F_e = 3$ closed transition line. This can be explained by the saturation effect. We compared the experimental results with the theoretical calculations based on the rate equation model, and found good agreement between them.

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