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Controlling the Goos-Hänchen and Imbert-Fedorov shifts via pump and driving field SAEED ASIRI[1], JINGPING XU[2], Institute of Quantum Science and Engineering (IQSE), and Department of Physics and Astronomy, Texas A&M University, College Station, Texas 77843-4242, M. AL-AMRI, The National Center for Mathematics and Physics, KACST, P. O. Box 6086, Riyadh 11442, Saudi Arabia, M. SUHAIL ZUBAIRY, Institute of Quantum Science and Engineering (IQSE), and Department of Physics and Astronomy, Texas A&M University, College Station, Texas 77843-4242 — We consider a three-level atomic medium and discuss how to control the Goos-Hänchen and Imbert-Fedorov shifts for a circular polarized Gaussian beam via pump and coherent driving field applied to the atomic medium. The susceptibility of the atomic medium can be adjusted by changing the driving field and pump. Consequently, for a fixed driving field, by turning on and off the pump the amplitude and the direction of the lateral and transverse shifts of such beam can be changed. We adopt stationary phase and beam simulation methods to derive our results.

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