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Controllable optical switch using a Bose-Einstein condensate in an optical cavity SHUAI YANG, Institute for Quantum Studies and Department of Physics, Texas A&M University, College Station, Texas 77843, USA, M. AL-AMRI, The National Center for Mathematics and Physics, KACST, P.O. Box 6086, Riyadh 11442, Saudi, JÖRG EVERS, Max-Planck-Institut für Kernphysik, Saupfercheckweg 1, D-69117 Heidelberg, Germany, M. SUHAIL ZUBAIRY, Institute for Quantum Studies and Department of Physics, Texas A&M University, College Station, Texas 77843, USA — The optical bistability of an ultra cold atomic ensemble located in a small volume ultra-high finesse optical cavity is investigated. We find that the transverse pumping field can be used to control the bistable behavior of the intra cavity photons induced by the input pumping along the cavity axis. This phenomenon can be used as a controllable optical switch.

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