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Polarization conversion in a silica microsphere PABLO BIANUCCI, CHRIS FIETZ, JOHN W. ROBERTSON, GENNADY SHVETS, CHIH-KANG SHIH, Department of Physics, The University of Texas at Austin — Light transmitted through a waveguide coupled to a whispering gallery mode (WGM) resonator will experience a non-linear phase shift. Microsphere WGMs can be of two orthogonal polarizations, and they are non-degenerate. We can exploit the non-degeneracy of the modes and the induced phase shift to convert the incoming polarization to its orthogonal one with high efficiency. We have experimentally demonstrated a conversion efficiency of 75% on a silica microsphere.

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