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Electrical switching of light using liquid crystal-infilled 2D photonic crystals. JORGE ANTONIO REYES AVENDAÑO, PETER HALEVI SAR, JUAN ADRIAN REYES CERVANTES — We have studied two-dimensional photonic crystals of hollow cylinders (made of Si or Ge) that are infilled with the nematic liquid crystal (NLC) 5CB. The dielectric tensor of the NLC cylinders is obtained by minimizing the free energy, which has elastic and electrostatic contributions [1]. Our calculations of the photonic band structure show that an applied electric field can produce switching of the transmitted light; this is realized due to a phase transition from the escaped radial to the axial configuration of the NLC molecules. Specifically, for a square lattice, with propagation in the [110] direction, the light is completely reflected when the field is off; on the other hand, it is partially transmitted when a sufficiently strong electric field is applied parallel to the cylinders. [1] J. A. Reyes-Cervantes, J. A. Reyes-Avendaño, P. Halevi. Proc SPIEl **5511**, 50.

Jorge Antonio Reyes Avendaño

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