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Modeling the tuning of lasing in liquid crystal based one-dimensional Photonic Crystal using the Finite Difference Time-Domain Method PAOLA CASTRO-GARAY, Departamento de Fisica, Universidad de Sonora, Blvd. Luis Enci- nas y Rosales, Hermosillo, Sonora 83180, Mexico., JESUS MANZANARES-MARTINEZ, Departamento de Investigacion en Fisica, Universidad de Sonora, Apartado Postal 5-088, Hermosillo, Sonora 83180, Mexico, YOHAN JASDID RODRIGUEZ-VIVEROS, DAMIAN MOCTEZUMA-ENRIQUEZ, Departamento de Fisica, Universidad de Sonora, Blvd. Luis Enci- nas y Rosales, Hermosillo, Sonora 83180, Mexico. — In this work, a numerical study based on the Finite Difference Time-Domain Method to determine the lasing from a finite one-dimensional Photonic Crystal composed by Porous Silicon and Liquid Crystal is proposed. As a consequence of the zero density of states in the Band Gap and the high Density of States at its edges, the emission is inhibited in the Gap and stimulated in its edges. We investigate the conditions where light emitted by a Gaussian source embedded in the Photonic Crystal can be switched into a monochromatic emission. We present the tuning of the lasing by changing the Density of States due to the tunability of the liquid crystal dielectric function.

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