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Band Structure Controlled by Chiral Imprinting ADRIAN REYES CERVANTES, Universidad Nacional Autonoma de Mexico, P. CASTRO-GARAY, RUBEN RAMOS-GARCIA, Instituto Nacional de Astronomía Optica y Electrónica — Using the configuration of an imprinted cholesteric elastomer immersed in a racemic solvent, we find the solution of the boundary–value problem for the reflection and transmission of incident optical waves due to the elastomer. We show a significant width reduction of the reflection band for certain values of nematic penetration depth, which depends on the volume fraction of molecules from the solvent, whose handedness is preferably absorbed. The appearance of nested bandgaps of both handednesses during the sorting mixed chiral process is also obtained. This suggests the design of chemically controlled optical filters and optically monitored chiral pumps.

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