Title: Light shutters from nanocrystalline cellulose rods in a nematic liquid crystal

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Abstract: This work reports a recently developed electro-optical (EO) device that can potentially be used as a light shutter or a privacy window. By using nanocrystalline cellulose rods, we were able to improve some of the most relevant parameters characterising the EO behaviour. A brief description of the proposed working mechanism for these devices is presented, and numerical simulations based on this mechanism of both the optical transmission and the cells' electrical capacitance are compared with the obtained results, validating the underlying working model considered.

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