

**In-plane switching deformed helix ferroelectric liquid crystal display cell**

**I.N. Kompanets, E.P. Pozhidaev, T.P. Tkachenko, A.V. Kuznetsov  
P.N. Lebedev Physical Institute (LPI), Moscow, RAS, Russia**

As it is well known the principal advantages of in-plane switching (IPS) liquid crystal display cells is the color accuracy due to the small gamma and color shifts, and since the director lies in the substrates plane, the viewing angle is large and symmetric. Together with this, the production of IPS-displays based on nematic liquid crystals is associated with the solution of rather complex technological problems caused by the need to form a grid of interdigitated electrodes.

In this message, we draw attention for the first time to the fact that the IPS electro-optical switching is a natural and inherent feature of a conventional planar-oriented display cell based on the deformed helix ferroelectric liquid crystal effect [1] (DHFLC-effect). In such a cell with continuous (and not interdigital) electrodes, the main optical axis is deflected in the plane of the substrates under the electric field E action [2]. Measured dependence of light transmittance T(E) and calculations results can be argued that in DHFLC cell there is the IPS electro-optical mode. IPS switching operates in kilohertz frequency range providing contrast ratio more than 200:1 in monochromatic light.

The paper will consider possible applications of the effect under consideration in display and photonic devices.

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**References**

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