

Abstract Submitted
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Effects of graphene on electro-optic switching and spontaneous polarization of a ferroelectric liquid crystal RAJRATAN BASU, US Naval Academy — A small quantity of graphene flakes was doped in a ferroelectric liquid crystal (FLC), and the field-induced ferroelectric electro-optic switching was found to be significantly faster in the FLC+graphene hybrid than that of the pure FLC. Further studies revealed that the suspended graphene flakes enhanced the FLC's spontaneous polarization by improving smectic-*C* ordering resulting from the pi-pi electron stacking, and reduced rotation viscosity by trapping some of the free ions of the FLC media. These effects coherently impacted the FLC-switching phenomenon, enabling the FLC molecules to switch faster on reversing an external electric field.

Rajratan Basu
US Naval Academy

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