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Effects of ferroelectric nanoparticles on ion-transport in a liquid crystal ALFRED GARVEY, RAJRATAN BASU, US Naval Academy — A small quantity of $BaTiO_3$ ferroelectric nanoparticles (FNPs) of 50 nm diameter was doped in a nematic liquid crystal (LC), and the free ion concentration was found to be significantly reduced in the LC+FNP hybrid compared to that of the pure LC. The strong electric fields, due to the permanent dipole moment of the FNPs, trapped some mobile ions, reducing the free ion concentration in the LC media. The reduction of free ions was found to have coherent impacts on the LC's conductivity, rotational viscosity, and electric field-induced nematic switching.

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