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Dielectric and Birefringence Properties of 4'-n-Pentyl-4-cyanobiphenyl (5CB) and 4-cyano-4/-Octyloxybiphenyl (8OCB) Liquid Crystals Mixtures[1] ANGELO VISCO, JON FOUST, RIZWAN MAHMOOD, Slippery Rock University — We have investigated optoelectric properties of two very different liquid crystals and their mixtures as a function of temperature. The compounds used were, 4'-n-Pentyl-4-cyanobiphenyl (5CB) - a room temperature nematic, and 4-cyano-4/-octyloxybiphenyl (8OCB) - a room temperature crystalline solid that exhibits smectic A, nematic and isotropic phases on heating. 8OCB is different from 5CB due to the formation of bilayers structure in smectic A phase. Our data indicate weakening of the coupling of nematic and smectic A order parameters upon increasing the concentration of 5CB. The dielectric data on mixtures have shown enhanced positive dielectric anisotropy. We will also report simultaneous studies of birefringence measurements on this system. These measurements are important for the fabrication of electro-optic applications.

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