Synthesis of Novel Liquid Crystal Materials and their properties for Ferroelectric Display

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Ferroelectric liquid crystal displays switch faster than conventional liquid crystal displays, and offer much higher resolution, and hence are suitable for microdisplay applications. Difluoroterphenyls are well-recognised as excellent host materials for ferroelectric mixtures.

The synthesis and mesomorphic properties of a systematic range of ortho difluoroterphenyls (1-5) and ortho difluoroquarterphenyls (6) with bulky terminal chains are detailed. The bulky terminal chain consists of a methoxy-4,4-dimethylpentyl group (2 and 4), a trimethylsilyl unit (1 and 3) and a dimethylethyl group (5 and 6). All the final products will be evaluated for their mesomorphic properties and a wide range of other physical properties, and the most suitable compounds will be formulated into mixtures for evaluation in prototype microdispalyes. The compounds 3, 4, 6 give a nematic phase however, all the compounds 1-6 give a SmC phase.

References:

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