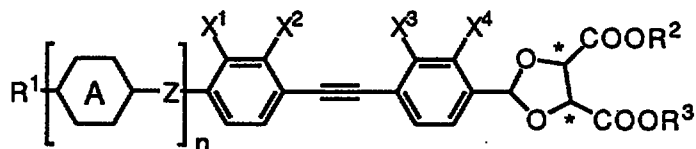


Abstract

5 The invention is concerned with novel chiral dopants of the formula



I

10 wherein

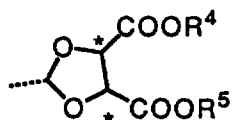
ring A signifies 1,4-phenylene, which is unsubstituted or mono- or multiply-substituted and in which optionally one or two CH groups can be replaced by nitrogen, or trans-1,4-cyclohexylene;

15 Z signifies a single covalent bond, -CH₂CH₂-, -CH₂O- or -OCH₂-;

X¹, X², X³, X⁴ each independently represent hydrogen or fluorine;

20 R¹ signifies hydrogen, alkyl or alkenyl with 1 or, respectively, 2 to 12 carbon atoms, which is unsubstituted or mono- or multiply-substituted with fluorine or chlorine and in which one or two non-adjacent CH₂ groups can be replaced by -O-, or a group of the formula

25



(a)

30 or - where R¹ is bonded to an aromatic ring - also fluorine, chlorine, cyano, CF₃, OCHF₂ or -OCF₃;

R², R³, R⁴, R⁵ signify alkyl or alkenyl with 1 or, respectively, 2 to 8 carbon atoms;

n signifies 0 or 1; and

* marks a centre of chirality,

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liquid crystalline mixtures which contain such dopants and their use for optical and electro-optical devices.

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