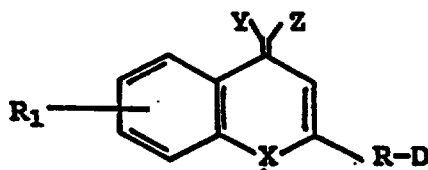


Abstract

EFFICIENT ELECTRON-ACCEPTING GROUPS FOR NON-LINEAR OPTICAL COMPOUNDS

Nonlinear optical compounds exhibiting second order nonlinear optical properties and possessing delocalized resonance configurations corresponding to:



wherein R is a pi-conjugated electron delocalized organic moiety; D is an electron donating group; R₁ is selected from hydrogen, electron withdrawing moieties, polymer attachment groups, -CN, -COOR", -SOR" and -SO₂R", wherein R" is an alkyl group containing from 1 to 15 carbon atoms; X is O or S; and Y and Z are independently selected from CN, CO₂R', NO₂, COR' and SO₂R', wherein R' is an alkyl group containing from 1 to 15 carbon atoms, or X and Y together form a ring structure selected from 1,3-indanediones, N,N-diallyl and N,N-dialkylthio-barbituric acids, 3-dicyanovinylindane-1-ones, 1,3-bisdicyanovinyl indanes and 3-sulfone-1-dicyanovinyl indanes. Polymers blended with, cured with, or having pendant side chains of the disclosed nonlinear optical compounds and exhibiting second-order nonlinear optical properties are also disclosed.