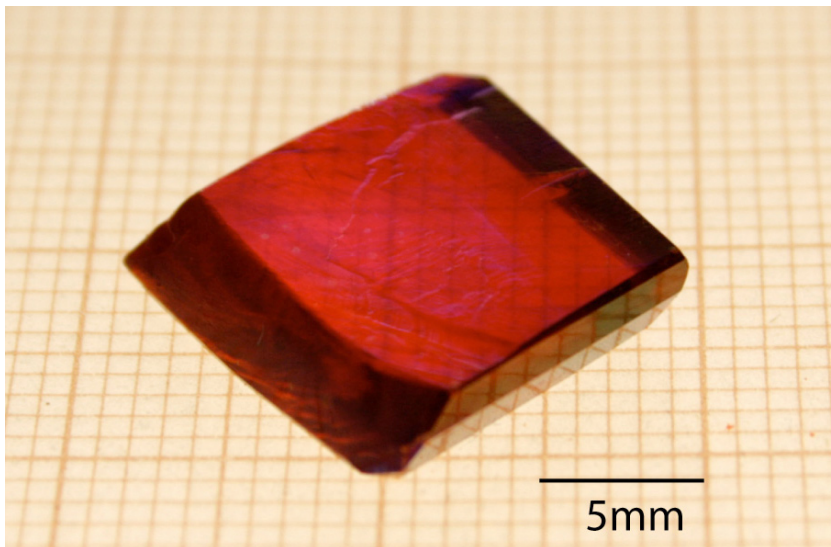


Electro-Optic OH1 Crystals

(2-(3-(4-Hydroxystyryl)-5,5-dimethylcyclohex-2-enylidene)malononitrile)



Properties

- high quality crystals
- cut and polished for various applications
- large nonlinear optical susceptibilities
- large electro-optic coefficients
- phase matching for THz generation between 1200 nm and 1460 nm

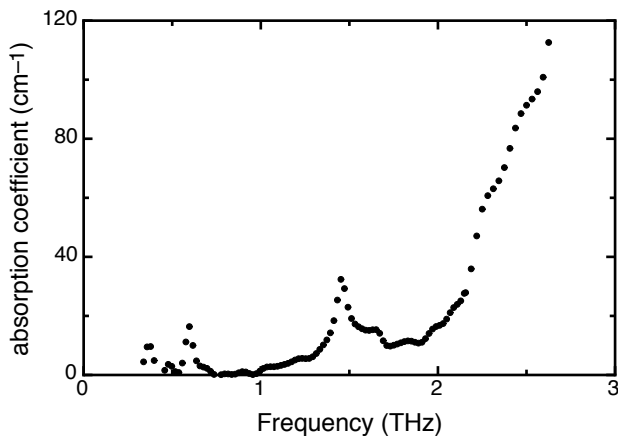
Applications

- efficient THz generation and detection from 0.1 - 3 THz
- fast electro-optic modulation
- optical parametric generation
- efficient frequency doubling of 1.55 μm radiation

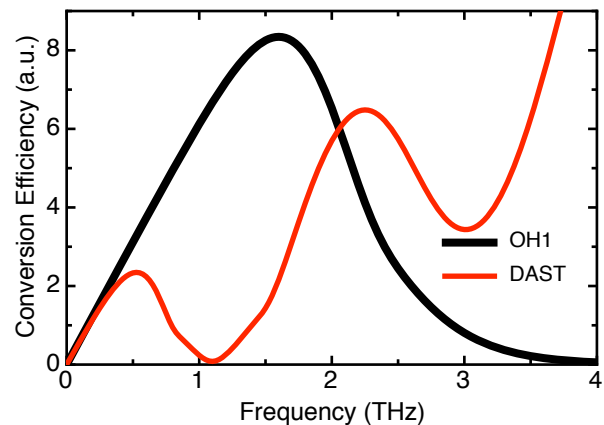
Physical Properties

melting temperature	212 °C
point group symmetry	mm2
refractive indices @ 1319 nm	$n_2 = 1.58, n_3 = 2.15$
nonlinear optical coefficients @ 1900 nm	$d_{333} = 120 \pm 10$ pm/V $d_{223} = 13 \pm 2$ pm/V $d_{322} = 8.5 \pm 2$ pm/V
electro optic coefficients	r_{333} (633 nm) = 109 ± 4 pm/V r_{333} (785 nm) = 75 ± 7 pm/V r_{333} (1064 nm) = 56 ± 2 pm/V r_{333} (1319 nm) = 52 ± 7 pm/V

THz Absorption Spectrum



THz Conversion Efficiency



- 1) "Configurationally locked, phenolic polyene organic crystal 2-{3-[4-hydroxystyryl]-5,5-dimethylcyclohex-2-enylidene}malononitrile: linear and nonlinear optical properties"; C. Hunziker, S. Kwon, H. Figi, F. Juvalta, O. Kwon, M. Jazbinsek, P. Günter, J. Opt. Soc. Am. B5, 1678-1683 (2008).
- 2) "A hydrogen-bonded organic nonlinear optical crystal for high-efficiency terahertz generation and detection"; F. Brunner, O. Kwon, S. Kwon, M. Jazbinsek, A. Schneider, P. Günter, Optics Express 16 (21), 16496-16508 (2008).
- 3) "Organic phenolic configurationally locked polyene single crystals for electro-optic and terahertz wave applications"; O. Kwon, S. Kwon, M. Jazbinsek, F. Brunner, J. Seo, C. Hunziker, A. Schneider, H. Yun, Y. Lee, P. Günter, Adv. Funct. Mater. 18, 3242-3250 (2008)

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