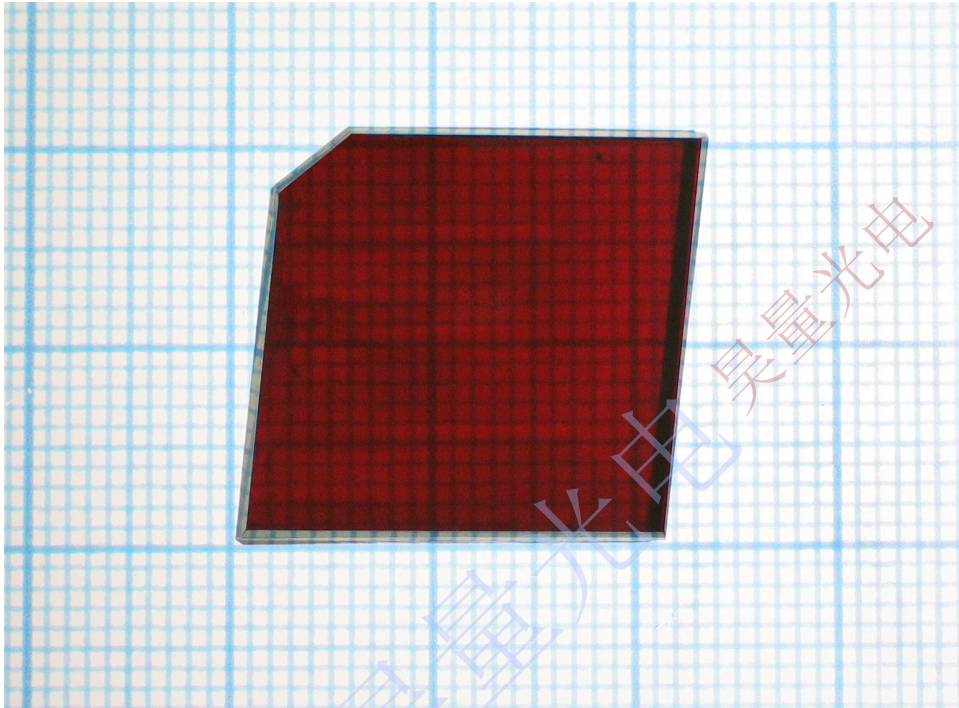


## Electro-Optic DAST Crystals

DAST: 4'-dimethylamino-N-methyl-4-stilbazolium tosylate



### Properties

- high quality crystals
- cut and polished for various applications
- large nonlinear optical susceptibilities ( $d_{11} > 1000\text{pm/V}$ )
- large electro-optic coefficients ( $r_{11}=92\text{ pm/V}$ )
- phase matching for THz-wave generation between 720 nm and 1650 nm

### Applications

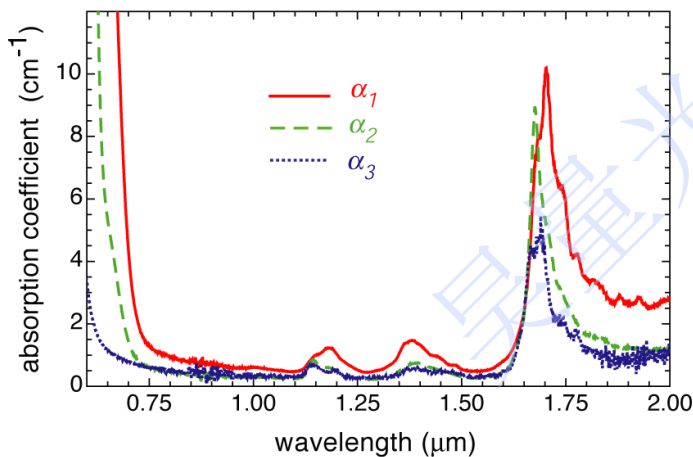
- efficient THz generation and detection from 0.3 to  $>16\text{ THz}$
- fast electro-optic modulation
- optical parametric generation
- efficient frequency doubling of  $1.55\text{ }\mu\text{m}$  radiation

## Physical Properties

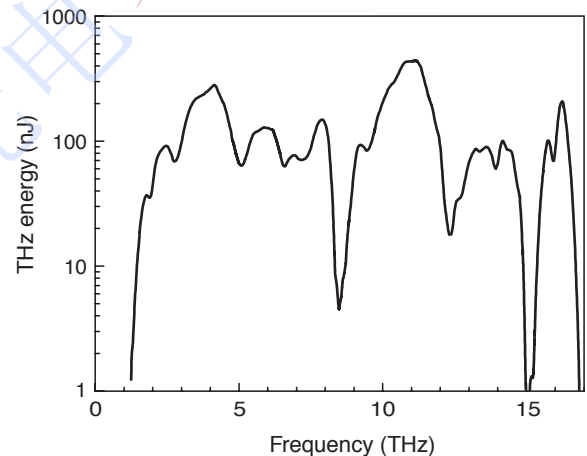
melting point	256 °C	
refractive indices	$n_1(720 \text{ nm}) = 2.519$ , $n_2(720 \text{ nm}) = 1.720$ , $n_3(720 \text{ nm}) = 1.635$	
nonlinear optical coefficients*	$d_{11}(1318 \text{ nm}) = 1010 \text{ pm/V}$	
	$d_{11}(1542 \text{ nm}) = 290 \text{ pm/V}$ , $d_{26}(1542 \text{ nm}) = 39 \text{ pm/V}$	
electro optic coefficients	$r_{11}(720 \text{ nm}) = 92 \text{ pm/V}$	
	$r_{11}(1313 \text{ nm}) = 53 \text{ pm/V}$	
	$r_{11}(1535 \text{ nm}) = 47 \text{ pm/V}$	
dielectric constants	$\epsilon_1(3 \text{ kHz}) = 5.2$ , $\epsilon_2(3 \text{ kHz}) = 4.1$ , $\epsilon_3(3 \text{ kHz}) = 3.0$	

\*based on  $d_{11} = 0.29 \text{ pm/V}$  of  $\alpha$ -quartz

## Absorption Spectrum



## THz Generation



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- 3) "High Efficiency Generation and Detection of Terahertz Pulses Using Laser Pulses at Telecommunication Wavelengths"; A. Schneider, M. Stillhart and P. Günter, Opt. Express 14, 5376 (2006).
- 4) "Strong-field single-cycle THz pulses generated in an organic crystal"; C. P. Hauri, C. Ruchert, C. Vicario, F. Ardana, Appl. Phys. Lett. 99, 161116 (2011).

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