

# Electro-Optics:

## Electro-Optic Devices

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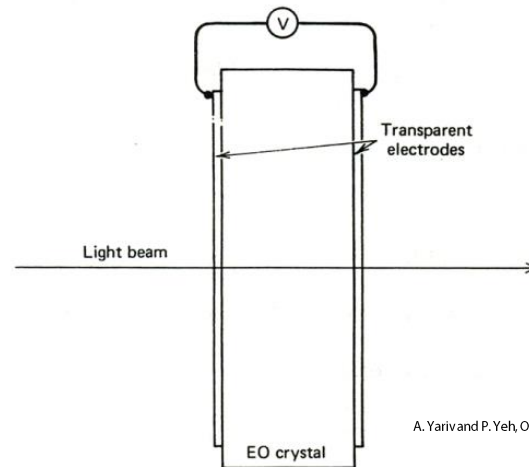
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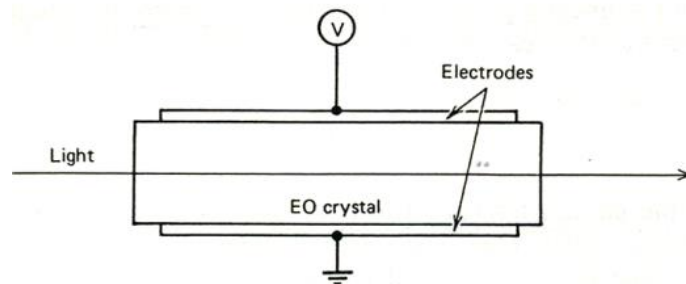
# Electro-Optic Light Modulators

## Longitudinal electro-optic modulator

→ Large acceptance area with a thin EO crystal plate



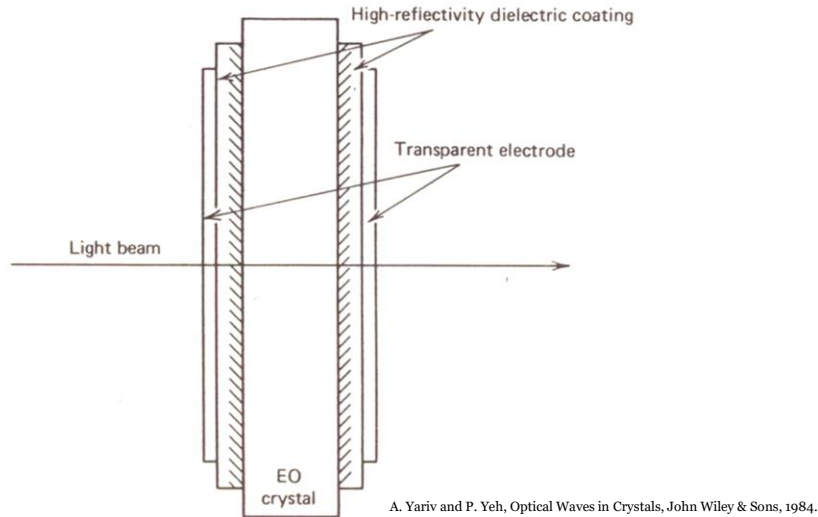
## Transverse electro-optic modulation:



→ Long interaction length at a given field strength

# Electro-Optic Fabry-Perot Modulators

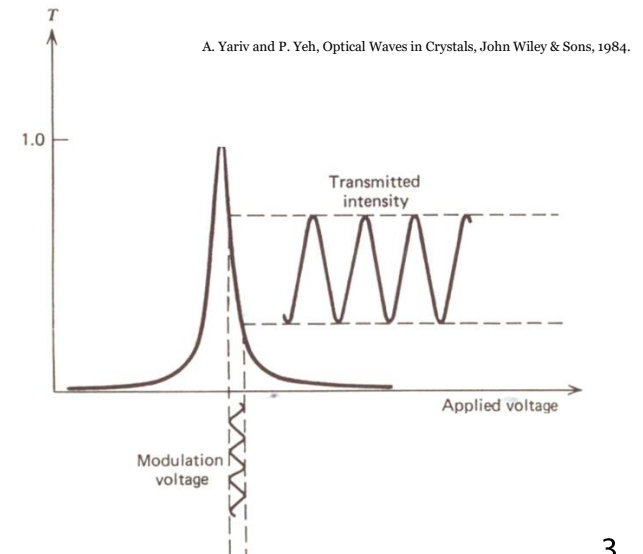
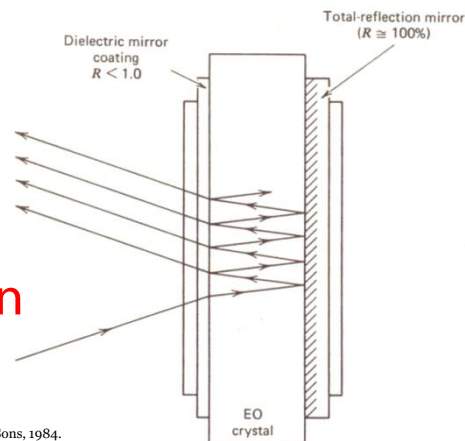
Electro-optic amplitude modulator:



Transmission as a function of applied voltage:

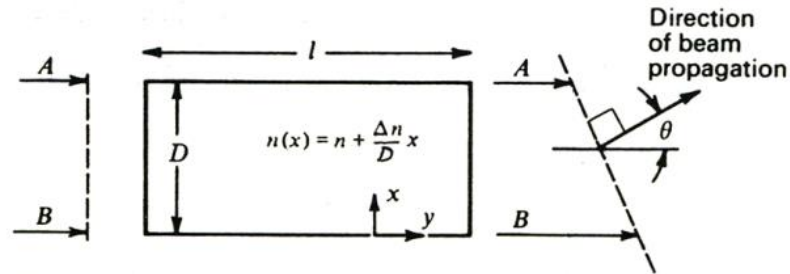
Phase modulation:

→ Gires-Tournois etalon

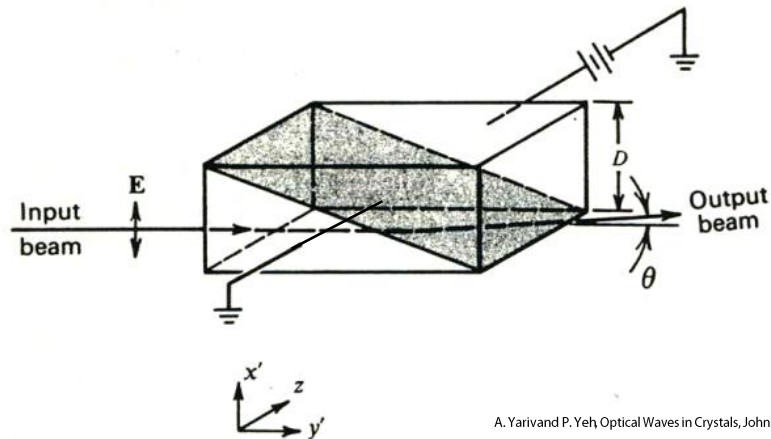


# Electro-Optic Beam Deflectors

Double-prism KDP beam deflectors:



A. Yariv and P. Yeh, Optical Waves in Crystals, John Wiley & Sons, 1984.



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# Electro-Optic Property of Liquid Crystal

## Liquid crystals:

Liquid crystal phases: smectic, nematic, and cholesteric

Nematic LC: uniaxial dipole moment

→ Dynamic director alignment along the applied electric field

→ Switching time: ~msec

## Twisted nematic LC in liquid crystal displays (LCDs)