

Materials and technologies: electro-optic dielectrics

Prof. Alessandro Busacca

When an electric field is applied across an optical medium, the distribution of electrons within is distorted, so that the polarizability and hence the refractive index of the medium changes anisotropically. The result of this electro-optic effect may be to introduce new optic axes into naturally doubly refracting crystals.

In solids, the linear variation in the refractive index associated with the applied field is known as the *Pockels effect* while the variation arising from the quadratic term is called the Kerr effect.

During the lecture, we will investigate the two phenomena also giving some examples of practical interest. In particular, we will discuss with regard to light-wave modulation using electro-optic materials.