

BIREFRINGENCE OF PURE AND DOPED LITHIUM NIOBATE CRYSTALS

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Lithium niobate (LiNbO_3) belongs to a stable group of optical crystals that are still very popular among researchers despite many decades has passed from the days it was grown for the first time. The most commonly used compositions of lithium niobate for optical applications are undoped (congruent) and magnesium-doped which is used to increase its resistance to the so called optical (or photorefractive) damage. However, doping by other elements such as Ti, Cr, Mn, Fe, Co, Cu or Zn is also possible and as a result it radically influences its properties. This will also be reflected by changes in absorption and values of refractive indices (ordinary and/or extraordinary). In some optical applications the birefringence (difference between ordinary and extraordinary refractive indices) is of more importance than knowledge of refractive indices themselves. The aim of the contribution is to compare the birefringence of the lithium niobate crystal of different origins. The birefringence of the samples is studied in VIS and IR spectral region using a broadband light source, set of linear polarizers and VIS/NIR optical spectral analyzers.