



Quadratic nonlinear optical parameters of 7% MgO-doped LiNbO₃ crystal

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Titre Quadratic nonlinear optical parameters of 7% MgO-doped LiNbO₃ crystal

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Mots-clés Lithium niobate [5], Maker fringes [6], Phase matching [7], Second harmonic generation [8]

Résumé en anglais Pure and 7% MgO-doped lithium niobate (LiNbO₃) single crystals were grown by the Czochralski technique. The shift of optical absorption edge in 7% MgO-doped crystal in direction of shorter wavelength compared to undoped crystal was observed. The second harmonic generation measurements of 7% MgO-doped LiNbO₃ crystal were performed at room temperature by means of the rotational Maker fringe technique using Nd:YAG laser generating at 1064 nm in picoseconds regime. Experimentally obtained value of nonlinear optical coefficient d_{33} for 7% MgO-doped LiNbO₃ was found to be less than for undoped crystal but higher than for 5% MgO-doped. I-type phase-matched second harmonic generation was achieved and the value of phase-matched angle was calculated. High quadratic nonlinearity together with tolerance to intensive laser irradiation makes 7% MgO-doped LiNbO₃ crystal interesting for application in optoelectronics.

URL de la notice <http://okina.univ-angers.fr/publications/ua15722> [9]

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Lien vers le document <http://www.sciencedirect.com/science/article/pii/S0925346715301439> [11]

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Liens

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