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**PAPER**

# Effect of size and composition on the second harmonic generation from lithium niobate powders at different excitation wavelengths

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## Abstract

LiNbO<sub>3</sub> microcrystalline systems, possessing almost stoichiometric composition, were produced by varying the temperature and time parameters in the annealing processes following a mechanochemical reaction of raw powders. SHG from these samples, detected for every fundamental wavelength in the range 800–1300 nm, and being maximal at a certain wavelength,  $\lambda_{\max}$ , for each sample, has been addressed to a random scattering of the induced nonlinear polarizations. Possible tuning of  $\lambda_{\max}$  could be ascribed to control of composition and grain size of the sample. Random orientation of the produced nanocrystallites was verified since no dependence for SHG intensity on incident polarization was observed.

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