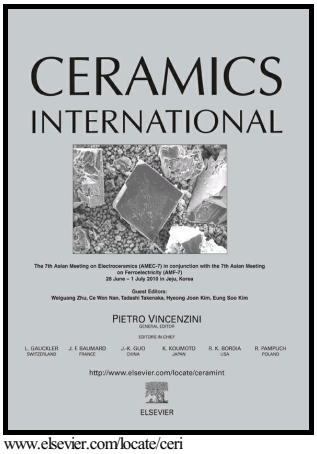

www.elsevier.com/locate/ceri

Tetragonal Er^{3+}-doped $(K_{0.48}Na_{0.48}Li_{0.04})(Nb_{0.96}Bi_{0.04})O_3$: lead-free ferroelectric transparent ceramics with electrical and optical multifunctional performances

Xiao Wu, Cengceng Fang, Jinfeng Lin, Chunwen Liu, Laihui Luo, Mei Lin, Xinghua Zheng, Cong Lin

PII: S0272-8842(17)32776-1
DOI: https://doi.org/10.1016/j.ceramint.2017.12.081
Reference: CERI16961

To appear in: *Ceramics International*

Received date: 28 November 2017
Revised date: 11 December 2017
Accepted date: 12 December 2017

Cite this article as: Xiao Wu, Cengceng Fang, Jinfeng Lin, Chunwen Liu, Laihui Luo, Mei Lin, Xinghua Zheng and Cong Lin, Tetragonal Er^{3+}-doped $(K_{0.48}Na_{0.48}Li_{0.04})(Nb_{0.96}Bi_{0.04})O_3$: lead-free ferroelectric transparent ceramics with electrical and optical multifunctional performances, *Ceramics International,* https://doi.org/10.1016/j.ceramint.2017.12.081

Tetragonal Er^{3+}-doped $(K_{0.48}Na_{0.48}Li_{0.04})(Nb_{0.96}Bi_{0.04})O_3$: lead-free ferroelectric transparent ceramics with electrical and optical multifunctional performances

Xiao Wu[a,*], Cengceng Fang[a], Jinfeng Lin[a], Chunwen Liu[a], Laihui Luo[b], Mei Lin[c], Xinghua Zheng[a], Cong Lin[a,*]

[a] College of Materials Science and Engineering, Fuzhou University, Fuzhou 350108, PR China

[b] Department of Microelectronic Science and Engineering, Ningbo University, Ningbo 315211, PR China

[c] Department of Applied Physics, The Hong Kong Polytechnic University, Kowloon, Hong Kong, China

wuxiao@fzu.edu.cn

lincong@fzu.edu.cn

*Corresponding author.

Abstract

The lead-free Er^{3+}-doped $(K_{0.48}Na_{0.48}Li_{0.04})(Nb_{0.96}Bi_{0.04})O_3$ (KNLNB-Er-x) ceramics were fabricated by conventional pressureless sintering. They possess a tetragonal perovskite phase with dense microstructure. High transmittances of the ceramics are obtained both in the visible and infrared regions. The optical band gap energies of them are 3.07-3.11 eV, close to other KNN-based materials. The relaxor-like characteristics, good dielectric, ferroelectric and piezoelectric properties of the ceramics have been obtained. The up-conversion photoluminescence spectra have been studied and obvious color-tunable emissions have been observed by