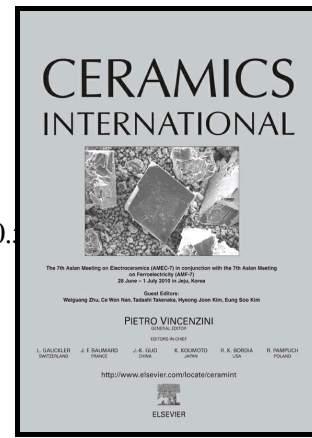


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High temperature stable dielectric properties and enhanced energy-storage performance of $(1-x)(0.85\text{Na}_{0.5}\text{Bi}_{0.5}\text{TiO}_3-0.15\text{Ba}_{0.8}\text{Ca}_{0.2}\text{Ti}_{0.8}\text{Zr}_{0.2}\text{O}_3)-x\text{K}_{0.5}\text{Na}_{0.5}\text{NbO}_3$ lead-free ceramics

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lead-free ceramics

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Abstract

Novel high temperature ceramic capacitors (1-x)(Na_{0.5}Bi_{0.5}TiO₃-0.15Ba_{0.8}Ca_{0.2}Ti_{0.8}Zr_{0.2}O₃)-100xK_{0.5}Na_{0.5}NbO₃ were synthesized in the solid-state reaction route. The results of K_{0.5}Na_{0.5}NbO₃ modification on dielectric behavior, energy-storage properties, AC impedance and temperature stable dielectric performance were roundly investigated. The reduced grain size and enhanced relaxor properties are obtained with the addition of KNN. The content of x=0.1 exhibits a stable permittivity (~1630) and dielectric loss (<0.05) over a relatively broad temperature range (66-230 °C). A variation in permittivity within ±15%

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