Dielectric and ferroelectric properties of the mixed crystals system $(CH_3NH_3)_5Bi_{2(1-x)}Sb_{2x}Cl_{11}$.

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Streszczenie

Dielectric and pyroelectric properties of the mixed crystals system, $(CH_3NH_3)_5Bi_{2(1-x)}Sb_{2x}Cl_{11}$ ($0 < x < 0.25$) were systematically investigated. Temperature dependencies of ε'_c in the vicinity of ferro-paraelectric phase transition were measured for the mixed crystals with x = 0.05, 0.07, 0.11, 0.13 and 0.25 in the frequency region 1 kHz–1 MHz. The substitution of bismuth atoms by antimony drastically reduces the magnitude of ε'_c and shifts the ferro-paraelectric phase transition towards higher temperatures. The dielectric dispersion of the complex electric permittivity, , in x = 0.05 crystals was studied in the frequency range from 30 to 1000 MHz. Around 321 K phase transition, two dielectric relaxators are postulated; a low-frequency one in the megahertz region showing a critical slowing down and a high-frequency one in the gigahertz region.

Słowa kluczowe

Alkylammonium halogenobismuthates (III), Ferroelectric properties, Phase transition, Spontaneous polarization, Dielectric dispersion

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