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Statistical Analysis of the Influence of Temperature on Microstructure Contact Surfaces on BaTiO$_3$-ceramics Doped with Ho$_2$O$_3$

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The materials based on BaTiO$_3$ can be controlled using different technological parameters and different additives. We investigate the influence of different temperature levels of sintering (1320°C, 1350°C and 1380°C) on the size of contact area for 0.1% Ho$_2$O$_3$ doped BaTiO$_3$ ceramic. Microstructural investigations were carried out using scanning electron microscopy (JEOL-JSM 5300) equipped with EDS (QX 2000S) system. Grain size distribution was determined by quantitative metallography method.

The new correlation between microstructure and dielectric properties of doped BaTiO$_3$-ceramics based on fractal geometry and contact surface probability is recently developed. The presented results indicate that statistical model of contact surfaces is very important for the prognosis of BaTiO$_3$-ceramics microstructure and dielectric properties.