

Synthesis, Development and Characterization of Novel Nanoparticle Ferrite Materials

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The single greatest technology gap for LTCC ferrite materials seems to be the properties of the existing ferrite composition and has led to limiting further reduction in size/cost of monolithic components. This work will present results on efforts to develop novel nanoparticle LTCC ferrite material(s) with significantly improved magnetic performance, allowing for a size and cost reduction compared to the existing “state of the art” designs/materials. The objective is to provide new LTCC ferrite materials with an increased saturation magnetization/magnetic permeability, which directly enables size reduction without sacrificing component performance. Nanoparticle polycrystalline NiCuZn based ferrites have been prepared under controlled experimental conditions and magnetic and electrical properties have been measured and will be presented.

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