

Nanocomposites and nanomaterials

Electrophysical properties of silicon nitride ceramics

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Due to the successful combination of properties the silicon nitride ceramics is one of the most promising high-temperature dielectrics [1–4]. The silicon nitride ceramics with yttrium oxide and aluminum oxide was obtained by CIP (cold isostatic pressing) via pressureless sintering at 1650 °C. The produced material has a high specific electrical resistivity and high density 2.97 g/cm³. Produced material is very promising in a wide range of applications because of the high properties, relatively low sintering temperature and short sintering time. Investigation of the mechanisms of electrical conductivity and such characteristics as resistivity, activation energy and electrical conductivity of the obtained ceramics are of undoubted interest.

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