

Title: Effect of $BaO-Bi_2O_3-P_2O_5$ glass additive on structural and dielectric properties of $BaTiO_3$ ceramics

Name:HAILY EL Mehdi
Equipe Physico-Chimie la Matière Condensée (PCMC), Faculté des Sciences de Meknès, Maroc

A phosphate $Bi_2O_3-BaO-P_2O_5$ (BBP) glass is added to $BaTiO_3$ ceramics (BT) to investigate its influence on densification, rearrangement of structural units, and dielectric properties of the elaborated composites. The BT ceramic is elaborated by the solid-state method while the glasses $BaO-Bi_2O_3-P_2O_5$ (BBP) are synthetized by melting-quench process. The synthesized composites are labeled BT-xBBP (x = 2.5, 5, and 7.5 wt %) where x stands for the glass content in weight percent. It is found that the glass addition induces a decrease of their densification and helps their sintering at lower temperatures. A composite (x=5) exhibits the lowest sintering temperature at 900°C. The composition dependence of the dielectric properties shows that a material (x= 5) has the highest dielectric constant at room temperature. The P-E plots are carried out and the energy storage parameters (density and efficiency) of the composites are determined. These parameters are affected by the porosity and the remnant polarization of the composites.

Biography

I am HAILY El Mehdi PhD student in 3rd year at the Laboratory Physico-Chemistry of Condensed Matter (PCMC) at the Faculty of Sciences of Meknes University Moulay Ismail, during my master's degree I published my end of study work entitled Pilot study on the design of the solar drying greenhouse industrial sludge in the Proceedings RSE-2016, Volume 1 (2016) 39-45, Currently I work on titanate-based phosphated dielectric glass and glass ceramics with a high dielectric constant and a high permittivity, which will be used for the storage of electrical energy.

Presenting author details

Full name: HAILY EL Mehdi
Contact number: hailyelmehdi@gmail.com
Linked In account: https://www.linkedin.com/in/el-mehdi-haily-5b6305aa/
Session name/ number: advanced energy materials
Category: Oral presentation