

Processing and characterization of porosity

Robert Freer Cost 525

University of Manchester/UMIST - UK

Abstract

D.Piazza, C. Capiani, C. Galassi

* ISTECCNR Research Institute for Ceramics Technology, via Granarolo 64, I-48018 Faenza, Italy.

Piezoelectric bending actuators with functionally graded microstructure are developed by introducing graded porosity through the thickness of a PZT based material. Graphite is introduced as the pore forming agent at increasing concentration in the body stacked layer by layer in the green state, die pressed and co-fired. The pore morphology across the actuator section is investigated by SEM analysis and mercury intrusion porosimetry; the dielectric, elastic and piezoelectric properties of the uniformly porous layers as well as of the graded porosity material are studied. The electric field induced bending displacement is measured by optical interferometry.