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STUTTGART

IEKC 6

"ADVANCED CERAMICS AND COMPOSITES"

6. Interregionales Europäisches Keramikkolloquium

Programme

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Institute for Manufacturing Technologies
of Ceramic Components and Composites
University of Stuttgart, Germany

in cooperation with the
Max-Planck-Institut für Metallforschung

II.Ceramic Processing and Manufacturing Technologies

Mechanical alloying and sintering of aluminium reinforced with SiC nanopowders produced by plasma-enhanced chemical-vapour deposition
J. Costa, Fort, J., Froyen, L., Viera, G., Bertran, E.
GRM, Dept. Enginyeria Industrial, Universitat de Girona, Girona, Catalonia, Spain

Light microscopic process control method for manufacturing of injection moulded ceramics
R. Fischer, Gadow, R.
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Injection moulding of rheological optimized new carbon materials
R. Fischer, Gadow, R.
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SiC ceramics with wood-like structure
A. Kaindl, Greil, P.
Inst. f. Werkstoffwissenschaften, Lehrstuhl Glas u. Keramik, Friedrich-Alexander-Universität Erlangen-Nürnberg, Erlangen,Germany

Porous SiO_2 film prepared by sol-gel process
P. Piaggio, Bottino, A., Capanelli, G., Monticelli, O., Siccardi, A.
Dipartimento di Chimica Industriale, Università di Genova, Genoa, Italy

Fabrication of H-β-alumina polycrystals
G. Schäfer
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Interparticle forces and rheology of aqueous based ceramic suspensions using diblock-copolymers as dispersants
J. Sindel, Sigmund, W. M., Aldinger, F.
Max-Planck-Institut für Metallforschung and Institut für Nichtmetallische Anorganische Materialien, Universität Stuttgart, Pulvermetallurgisches Laboratorium, Stuttgart, Germany

Rapid production of ceramic parts with temperature induced forming
L.-W. Wang, Sigmund, W. M., Pfeifer, R., Aldinger, F.
Max-Planck-Institut für Metallforschung and Institut für Nichtmetallische Anorganische Materialien, Universität Stuttgart, Pulvermetallurgisches Laboratorium, Stuttgart, Germany

Influence of the Zr/Ti-ratio on the sintering behaviour of morphotropic PZT doped with Ta, W and Fe respectively
J. Wehr, Wang, P., Hoffmann, M. J.
Daimler Benz AG, Research and Technology, Ulm, Germany

III. Materials Testing and Physical Properties

Thermal residual stresses in homogeneous and heterogeneous ceramics of Al_2O_3 and Y_2O_3 -stabilized ZrO_2
D. Amos, Eigenmann, B. (S), Löhe, D.
Insitut für Werkstoffkunde I, Universität Karlsruhe (TH), Karlsruhe Germany

X-ray spectroscopy and x-ray diffraction with synchrotron radiation at ANKA-efficient tools for the characterisation of ceramics
Buth, G., S. Doyle, Hagelstein, M., Hesch, K., Mathis, Y.-L., Mexner, W., Moser, H. O., Pellegrin, E., Simon, R., Steininger, R.
Forschungszentrum Karlsruhe, Technik und Umwelt, Projektgruppe Errichtung ANKA (PEA), Karlsruhe, Germany

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MECHANICAL ALLOYING AND SINTERING OF ALUMINUM REINFORCED WITH SiC NANOPOWDERS PRODUCED BY PLASMA-ENHANCED CHEMICAL-VAPOUR DEPOSITION

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Nanometric powders of stoichiometric SiC have been synthesised by plasma-enhanced chemical-vapour deposition. These are constituted by amorphous particles with diameters ranging from 10 to 100 nm. Due to their high hydrogen content, a heat treatment at 900^{0}C was needed to prevent spontaneous oxidation. The stabilized SiC powder was then mechanically alloyed with aluminum particles of 40 μm in diameter and the alloy was formed by hot isostatic sintering. The SiC content ranged from 0 to 5% in weight. A detailed analysis of the alloyed powder microstructure is presented as well as preliminary results concerning the mechanical properties after sintering.