

Influence of the Type of Cations on the Grain Boundary Phase Crystallisation of SiAlON Ceramics

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A 25 α :75 β SiAlON composition was designed with different type of cations and at different molar ratios. The effect of the type of cations on the composition and the type of grain boundary phase (amorphous or crystalline) and the development of the resultant microstructures were determined following gas pressure sintering and further heat treatment under different conditions. The influence of the grain boundary chemistry and microstructure on mechanical and oxidation properties was investigated. The particular composition containing pure Yb was found to be more oxidation resistant than the others due to formation of mainly Yb₂Si₂O₇ crystalline phase. Furthermore, crystobalite formation was observed in the scale of low oxidation resistant compositions..



ISN'T IT 2006

Fifth International Symposium on Nitrides

**PROGRAMME, ABSTRACTS &
PARTICIPANTS LIST**

**3-5 APRIL 2006
ANADOLU UNIVERSITY
ESKISEHIR - TURKEY**



TOPICAL MEETING

Session Chair *Stuart Hampshire (University of Limerick, IE)*

14:30 – 15:00 *"Two Step Sintering to Produce Nanocrystalline Silicon Nitride Ceramics"*

Hai-Doo Kim (Korea Institute of Machinery and Materials, KR) *(Invited Speaker)*

15:00 – 15:30 *"Mechanochemical Nitride Synthesis"*

Derek P. Thompson (University of Newcastle, UK) *(Invited Speaker)*

15:30 – 15:50 *"SPS-Technology - A New Range of Possibilities for the "FAST" Consolidation of Innovative Materials"*

Heinz Kessel (FCT Systeme GmbH, DE)

15:50 – 16:10 *"The New Top-To-Bottom Method of SiAlON Precursor Preparation by Activation in a Planetary Mill with a Very High Acceleration"*

Malgorzata Sopicka-Lizer (Silesian University of Technology, PL)

16:10 – 16:30 *"Effect of the Processing Conditions on the Thermal Conductivity of Sintered Reaction-Bonded Si₃N₄"*

Zoltán Lenčéš (Slovak Academy of Sciences, SK)

16:30 – 16:50 Tea & Coffee Break

Session Chair *Pavol Šajgalik (Slovak Academy of Sciences, SK)*

16:50 – 17:20 *"Hot Forging of an α -SiAlON Ceramic"*

Yi-Bing Cheng (Monash University, AU) *(Invited Speaker)*

17:20 – 17:50 *"Impact of the Local Grain Boundary Chemistry on the Properties of Y₂O₃-Doped Silicon Nitrides"*

Rainer Oberacker (Universitaet Karlsruhe, DE) *(Invited Speaker)*

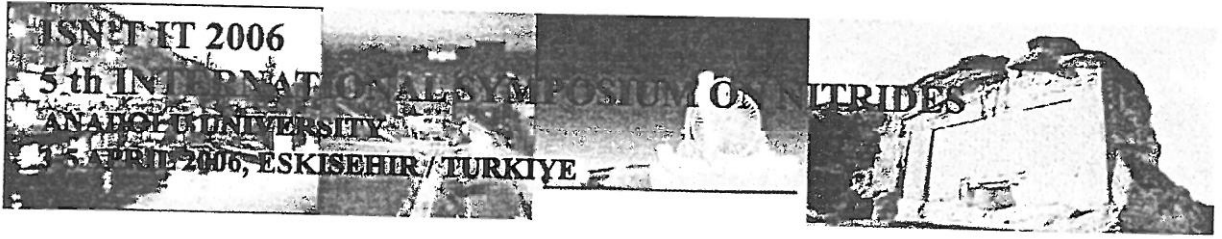
17:50 – 18:20 *"The Intergranular Oxynitride Microstructure in Silicon Nitride Based Ceramics"*

Lena Falk (Chalmers University of Technology, SE) *(Invited Speaker)*.

18:20 – 18:40 *"Influence of the Type of Cations on the Grain Boundary Phase Crystallisation of SiAlON Ceramics"*

Nurcan Çaliş (MDA, TR)

19:30 – 21:00 Welcome Cocktail



CERTIFICATE OF ATTENDANCE

Mrs. NURCAN CALIS ACIKBAS

from TURKEY

has attended to the 5th International
Symposium on Nitrides

A handwritten signature in black ink, appearing to read "Hasan Mandal".

Prof. Dr. Hasan MANDAL

Symposium Chair