

SURFACES AND INTERFACES

Edited by
R. MORRELL
*National Physical Laboratory,
Teddington, Middlesex, TW11 0LW, U.K.*

and

G. PARTRIDGE
*GEC Alstom Engineering Research Centre,
Lichfield Road, Stafford, Staffs., ST17 4LN, U.K.*

BRITISH CERAMIC PROCEEDINGS
No. 48 **APRIL 1991**



Published by The Institute of Ceramics
Shelton House, Stoke Road, Shelton, Stoke-on-Trent, Staffs.,
ST4 2DR, U.K.

Contents

Page

Session 1: Surface Properties

1. The Application of Ion-Beam Technology to Ceramic Industrial Materials 1
G. Dearnaley, P. D. Goode and C. J. Bedell
2. Modification to the Surface Layers of Alumina in Sliding Wear 11
M. G. Gee
3. Solidification Structures on Alumina Ceramics and Cordierite Glass-Ceramics after Dielectric Breakdown 25
I. O. Owate and R. Freer
4. The Fabrication of Ceramic Matrix Composites by Chemical Vapour Infiltration Techniques (*Abstract only*) 35
D. P. Bashford and C. Hayman
5. Preparation of $Ba_xSr_{(1-x)}TiO_3$ and SiO_2 Films by Sol-Gel Techniques 37
A. R. Hyde and G. Partridge
6. A Surface Analytical Study of the Interaction of Organo Silanes with AR- and E-Glass Surfaces 47
F. R. Jones, D. Pawson and D. Wang
7. Standards in Microstructural Preparation of Advanced Engineering Materials 57
B. Bousfield
8. Confocal Scanning Optical Microscopy Applied to Ceramics and Glasses 69
N. J. McCormick and M. G. Gee
9. Powder Sizing by Oxidation 77
M. Stewart

Session 2: Ceramic/Ceramic and Ceramic/Metal Interfaces

10. Interaction of Glass-Ceramic Superconductor Thick Films and Microelectronic Substrates 85
M. E. Yakinci, D. Holland and L. Blunt
11. Interaction between Al Alloy Brazes and SiC 95
A. C. Ferro and B. Derby
12. The Use of Finite Element Methods in the Design of Ceramic-to-Metal Joints 107
A. J. Foley and C. G. Winters
13. Reactions and Phase Relations in the Ti- Al_2O_3 System 123
S. K. Choi, F. J. J. Van Loo and R. Metselaar
14. Interface Reactions during Metal/Ceramic Diffusion Bonding 131
Y. Matsushita, C-D. Qin and B. Derby

15. Interfacial Reactions of Active Brazes with High-Performance Ceramics <i>E. Lugscheider, M. Boretuis and W. Tillman</i>	. 139
16. The Formation of Al ₂ O ₃ /Al Composites by Controlled Oxidation <i>Ping Xiao and B. Derby</i>	. 153
17. Glass-Ceramic Bonding Media <i>G. Partridge and T. Hales</i>	. 161
18. Bonding of Lithium Zinc Silicate Glass-Ceramic to EN 58B Stainless Steel <i>B. L. Metcalfe, I. W. Donald and D. J. Bradley</i>	177
19. The Effect of Reactions at Glass-Ceramic/Metal Interfaces <i>D. Holland, F. Hong, E. A. Logan and A. J. Sturgeon</i>	. 189
Author Index	. 199
Subject Index	. 201