

## 2. 口頭発表

### (1) 国際学会発表

#### 1. H. Gu

Chemistry and bonding of grain boundary and interface in silicon nitride based ceramic materials  
8<sup>th</sup> Japan Institute of Metal International Symposium on Interface Science and Materials Interconnection  
– 8<sup>th</sup> International Conference on Intergranular and Interphase Boundaries in Materials  
Tateyama, Toyama, Japan  
Abstracts, p. 96 (July 1-4, 1996)

#### 2. H. Gu

Quantitative interfacial chemical and bonding in ceramic materials  
Materials Research Society 1996 Fall Meeting Symposium on Solid-State Chemistry of Inorganic  
Materials, Boston, Massachusetts, USA  
Abstracts, p. 532 (Dec. 2-5, 1996)

#### 3. H. Gu and M. Rühle

Influence of Ca-doping on chemistry and force balance at grain boundary in  $\text{Si}_3\text{N}_4$   
Materials Research Society 1996 Fall Meeting Symposium on Interfacial Engineering for Optimized  
Properties, Boston, Massachusetts, USA  
Abstracts, p. 917 (Dec. 2-5, 1996)

#### 4. H. Gu

Tendency and scale of chemistry and bonding changes at  $\text{SrTiO}_3$  grain boundaries by Fe segregation  
Materials Research Society 1996 Fall Meeting Symposium on Interfacial Engineering for Optimized  
Properties, Boston, Massachusetts, USA  
Abstracts, p. 914 (Dec. 2-5, 1996)

5. H. Gu

Quantitative EELS profiling of planar faults in  $\text{CaTiO}_3$  perovskite approaching atomic resolution: a comparison with Z-contrast imaging

Materials Research Society 1996 Fall Meeting Symposium on Atomic Resolution Microscopy of Surface and Interfaces, Boston, Massachusetts, USA

Abstracts, p. 477 (Dec. 2-5, 1996)

6. H. Gu

Quantitative characterization of grain boundary films in silicon nitrides

2<sup>nd</sup> International Symposium on Advanced Physical Fields – Characterization of Nanostructures

Tsukuba, Japan, Abstracts, p. 49 (February 19-21, 1997)

7. H. Gu

Distinguishing ceramic interface through their bonding

Gordon Research Conference on Solid State study of Ceramics – Interface Phenomena and Interface Dynamics, Kimball Union, New Hampshire, USA

Abstracts, p. 31 (August 1-6, 1997)

8. H. Gu and F. Wakai

STEM investigation of segregation and local structure at grain boundary in tetragonal zirconia

Microscopy Society of America 55<sup>th</sup> Annual Meeting and Microbeam Analysis Society 31<sup>st</sup> Annual Meeting on Microscopy and Microanalysis, Cleveland, Ohio, USA

Abstracts, p. 549-550 (August 10-14, 1997)

9. H. Gu

Quantitative characterization of grain boundary films in  $\text{Si}_3\text{N}_4$  by EELS and Z-contrast imaging

Microscopy Society of America 55<sup>th</sup> Annual Meeting and Microbeam Analysis Society 31<sup>st</sup> Annual Meeting on Microscopy and Microanalysis, Cleveland, Ohio, USA

Abstracts, p. 661-662 (August 10-14, 1997)

10. H. Gu

Structure, composition and chemical bonding of interfaces in  $\text{Si}_3\text{N}_4$  ceramics: a new approach

3<sup>rd</sup> Okinaka Symposium on Materials Science and Engineering Serving Society

Makuhari, Chiba, Japan

Abstracts, p. 48 (September 13-15, 1997)

11. H. Gu and L. Ma

Double-layer structure in grain boundary devitrified silicon nitride

4<sup>th</sup> International Union of Materials Research Society International Conference in Asia – Symposium on Interface of Ceramic Materials

Makuhari, Chiba, Japan

Abstracts, p. 375 (September 17-18, 1997)

12. H. Gu, F. Wakai, K. Hiraga and Urabe

Segregation and local structure at grain boundaries in  $\text{SiO}_2$ -doped tetragonal  $\text{ZrO}_2$  polycrystalline materials

4<sup>th</sup> International Union of Materials Research Society International Conference in Asia – Symposium on Interface of Ceramic Materials, Makuhari, Chiba, Japan

Abstracts, p. 374 (September 17-18, 1997)

13. H. Gu

ELNES methods for characterization of interfaces

Workshop on Interfaces in Silicon-based Ceramics

Berkeley, California, USA

Abstracts, p.8 (October 10-11, 1997)

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Interface chemistry of Ca-doped  $\text{Si}_3\text{N}_4$

Workshop on Interfaces in Silicon-based Ceramics, Berkeley, California, USA

Abstracts, p.10 (October 10-11, 1997)

15. H. Gu

Influence of La and Yb on the bonding and compositional variations at interfaces in Si<sub>3</sub>N<sub>4</sub>/La-Sialon glass systems (invited)

Workshop on Interfaces in Silicon-based Ceramics

Berkeley, California, USA

Abstracts, p. 15 (October 10-11, 1997)

16. H. Gu and N. Kondo

Grain boundary structure and composition of the superplastically deformed silicon nitride

6<sup>th</sup> International Symposium on Ceramic Materials and Components for Engines

Arita, Japan

Abstracts, p. 89 (October 19-23, 1997)

17. K. Kaneko, T. Gemming and I. Tanaka

Analytical Investigation of Grain Boundary of polycrystalline alumina by STEM

EMAG '97 Cambridge, U.K. (1997)

18. K. Kaneko, Isao Tanaka, Masato Yoshiya

Electron microscopic characterization of doped sintered  $\alpha$ -Al<sub>2</sub>O<sub>3</sub>

Gordon Conference

New Hampshire, U.S.A. (1997)

19. T. Nagano, S. Honda, F. Wakai, and M. Mitomo

Deformation of Liquid-Phase Sintered Silicon Carbide at Elevated Temperature

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Proceedings, pp. 707-712 (October 19-23, 1997).

20. K. Kakimoto, F. Wakai, J. Bill, and F. Aldinger  
Composition Change of Polycarbosilane-Derived SiC

Ceramics by Carbothermic Reduction  
6th International Symposium on Ceramic Materials and

Components for Engines, Arita, Japan  
Abstracts, p. 48 (October 19-23, 1997)

21. F. Wakai, T. Nagano and N. Kondo

Ceramics Superplasticity

Proc. Special Symp. On Advanced Materials, Special Symposium on Advanced Materials, Nagoya  
(April 14, 1998)

22. F. Wakai and H. Ogawa

Cooperative Movement of Nanocrystalline Grains in Superplasticity

The Second Yamazaki International Symposium, Time Dependent Mechanical Response of Engineering  
Ceramics, Tokyo

(September, 3-4 1998)

23. F. Wakai

Superplastic Deformation of Engineering Ceramics

EnCera'98 & HT-CMC 3, Osaka

(September 6-9, 1998)

24. F. Wakai and H. Ogawa

Geometrical Model of Grain Switching in Superplasticity

Towards Innovation in Superplasticity II, Kobe

(September 21-24 1998)

25. F. Wakai

Grain Boundary Dynamics in Superplasticity

50<sup>th</sup> Pacific Coast Regional and Basic Science Division Fall Meeting of The American Ceramic Society

Irvine (October 21-24, 1998)

26. H. Gu

Grain boundary structure and chemical bonding in boron doped silicon carbide

9<sup>th</sup> International Conference on Intergranular and Interphase Boundaries in Materials

Prague, Czech Republic

Abstracts, p. 265 (July 6-9, 1998)

27. H. Gu and L. Ma

Two-film structure in rare-earth-doped silicon nitride

9<sup>th</sup> International Conference on Intergranular and Interphase Boundaries in Materials

Prague, Czech Republic

Abstracts, p. 270 (July 6-9, 1998)

28. F. Lofaj, H. Gu, A. Okada and H. Kawamoto

Grain boundary modification during long-term creep in silicon nitride

9<sup>th</sup> International Conference on Intergranular and Interphase Boundaries in Materials

Prague, Czech Republic

Abstracts, p. 312 (July 6-9, 1998)

29. H. Gu

Mapping the chemical composition and bonding at interfaces in structural ceramics

14<sup>th</sup> International Congress of Electron Microscopy

Cancun, Mexico

Abstracts, p. 623 (August 31-September 4, 1998)

30. H. Gu

Indirect EELS analysis towards atomic resolution

Port Ludlow Workshop: Towards Atomic Resolution Analysis

Port Ludlow, Washington, USA

Abstracts, p. 52 (September 6-11, 1998)

31. H. Gu and R. Dunin-Borkowsky

Quantitative comparison of the grain boundary structure, composition and internal potential in the undoped and the silica-doped 3Y-TZP

2<sup>nd</sup> International Conference "Towards Innovation in Superplasticity"

Kobe, Japan

Abstracts, p. 106 (September 21-24, 1998)

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Structure, composition and bonding of ceramic interfaces by spatially resolved EELS analysis  
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Matsue, Shimane, Japan  
Abstracts, p. 69 (October 13-17, 1998)
33. K. Kaneko, T. Saitoh and S. Tsurekawa  
Determination of grain boundary structure by EELS of Al-doped sintered  $\beta$ -SiC  
IIB '98  
Pragh, Czech Republic (1998)
34. K. Kaneko, T. Saitoh, S. Tsurekawa  
Determination of grain boundary structure of Al-doped sintered  $\beta$ -SiC by EELS  
ICEM-14 (1998)
35. K. Kaneko, M. Yoshiya, I. Tanaka and S. Tsurekawa  
Trace of oxygen, analytical studies at grain boundaries of undoped polycrystalline  $\beta$ -SiC  
TARA '98 (1998)
36. T. Nagano, S. Honda, F. Wakai, and M. Mitomo  
Compressive Deformation of Liquid-Phase Sintered Silicon Carbide at Elevated Temperature (Invited)  
Superplasticity & Superplastic Forming 1998, San Antonio, USA  
Proceedings, pp. 247-256 (February 16-19, 1998).
37. T. Nagano, H. Gu, Y. Shinoda, M. Mitomo and F. Wakai  
Tensile Ductility of Liquid-Phase Sintered  $\beta$ -Silicon Carbide at Elevated Temperature  
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38. T. Nagano, K. Kaneko, and H. Kodama

Tensile Ductility of Al-Doped  $\beta$ -Silicon Carbide at Elevated Temperature (Invited)

The Third Pacific Rim International Conference on Advanced Materials and Processing (PRICM-3),  
Honolulu, USA

Proceedings, pp. 1897-1902 (July 12-16, 1998).

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Proceedings, pp. 507-512 (September 21-24, 1998).

40. Y. Shinoda, T. Nagano, H. Gu and F. Wakai

High Temperature deformation of boron and carbon doped nanoscale  $\beta$ -Silicon Carbide

Int'l. Symp. Towards Innovation in Superplasticity II, Kobe, JIMIS 9, Kobe, JP

Abstract, p.??? (September 21-24, 1998)

41. Y. Shinoda, T. Nagano, H. Gu and F. Wakai

High Temperature Deformation of no Additive Nanoscale  $\beta$ -Silicon Carbide

50th Pacific Coast Regional and Basic Science Division Meeting of The American Ceramic Society  
Irvine, USA

Abstract, p.8 (October 21-24, 1998)

42. K. Kakimoto, F. Wakai, J. Bill, and F. Aldinger Fabrication of Polycarbosilane-Derived SiC Bulk

Ceramics by Carbothermic Reduction 4th International Conference on Nanostructured Materials,

Stockholm, Sweden Abstracts, p. 243 (June 14-19, 1998)

43. S. Ishihara, F. Aldinger and F. Wakai

High Temperature Deformation of Precursor Derived Si-C-N Materials

Workshop on Ultra High Temperature Ceramics, Denver, USA (May 25-30, 1998)



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High Temperature Deformation of Precursor Derived Si-C-N Ceramics  
Towards Innovation in Superplasticity II, JIMIS 9 in Kobe, Japan (Sep 21-25, 1998)
45. F. Wakai and H. Ogawa  
Grain Boundary Dynamics in Superplasticity of Nanocrystalline Ceramics  
International Meeting on Thermo-Mechanical and Electrical Properties of High-Temperature Materials  
Maui, Hawaii, USA (January 4-9, 1999)
46. F. Wakai and H. Ogawa  
Geometrical Change of Grains in Superplasticity  
7<sup>th</sup> Int. Sym. Plasticity and Its Current Applications  
Cancun Mexico (January 5-13, 1999)
47. K.I. Kakimoto, F. Wakai, J. Bill, and F. Aldinger  
Processing of Si-C-O Bulk Ceramics Derived From Polycarbosilane Precursor  
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Indianapolis, IN, USA (April 25-28, 1999)
48. K. Kakimoto, F. Wakai  
Microstructural Evaluation of Precursor Derived Si-C-O Bulk Ceramics  
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49. F. Wakai, N. Enomoto, H. Ogawa  
Grain Boundary Dynamics in Superplasticity and Grain Growth  
1999 MRS Fall meeting, Boston, U.S.A  
(November 29-December 3, 1999)
50. H. Gu  
Nano-scale phase separation in precursor-derived Si-based amorphous ceramic materials

JST-MPI Workshop for Ceramic Superplasticity Project  
PML, Stuttgart, Germany  
(June 2, 1999)

51. H. Gu

Nano-scale phase separation in the precursor-derived Si-based amorphous ceramic materials (keynote)  
5<sup>th</sup> International Union of Materials Research Society International Conference on Advanced Materials –  
Symposium A: Nanostructured Materials  
Beijing, China  
Abstracts 1, p. 42 (June 13-18, 1999)

52. H. Gu

Interfacial structure and chemistry in Si-based ceramics  
5<sup>th</sup> International Union of Materials Research Society International Conference on Advanced Materials –  
Symposium DD: Advanced Ceramics  
Beijing, China  
Abstracts 2, p. 489 (June 13-18, 1999)

53. T. Nishimura, M. Mitomo, A. Ishida and H. Gu

Improvement of high temperature strength and creep of  $\alpha$ -Sialon by grain boundary crystallization  
8<sup>th</sup> International Conference on Creep and Fracture of Engineering Materials and structures  
Tsukuba, Japan  
Abstracts, p. 31 (November 1-5, 1999)

54. H. Gu

Local Structure and chemical bonding in precursor-derived amorphous ceramics (invited)  
Final Symposium of International Joint Project Ceramics Superplasticity  
Tokyo, Japan  
Abstracts, p. 65 (November 10-11, 1999)

55. H. Gu

Stable and unstable grain boundary structures in nanocrystalline SiC (invited)

Final Symposium of International Joint Project Ceramics Superplasticity

Tokyo, Japan

Abstracts, p. 95 (November 10-11, 1999)

56. K. Kaneko、永野孝幸、玉利信幸

S P S 焼結した炭化ケイ素のナノ組成及びナノ構造

Composites at Lake Louise II

Lake Louise, Canada (1999)

57. K. Kaneko、袁 俊、吉矢真人、田中功

T E M と S T E M を用いた S P S 焼結した炭化ケイ素のナノ組成及びナノ構造の解析

EMAG 99

Sheffield, U.K. (1999)

58. T. Nagano, H. Gu, Y. Shinoda, G.D. Zhan, M. Mitomo, and F. Wakai

Superplastic Behavior of Liquid-Phase Sintered  $\beta$ -Silicon Carbide

Sixth Annual International Conference on Composites Engineering, Orland, USA

Abstracts, pp.607-608 (June 27-July 3, 1999)

59. T. Nagano, K. Kaneko, S. Honda, and H. Kodama

Tensile Ductility of Solid-Phase Sintered  $\beta$ -Silicon Carbide with The Addition of Al at Elevated Temperature

Composites at Lake Louise '99, Lake Louise, Canada

Abstracts, (October 31-November 5, 1999)

60. Y. Shinoda, T. Nagano, H. Gu and F. Wakai

The Influence of Boron Content on Superplasticity of B,C-SiC

The American Ceramic Society's Annual Meetig & Exposition, Indianapolis, USA

Abstract, p.279 (April 25-28, 1999)

61. Y. Shinoda, T. Nagano, H. Gu and F. Wakai

High Temperature deformation Behavior of Nanocrystalline Ceramics Composite

12th International Conference on Composite Materials, Paris, FR

Abstract, p.36 (July 5-9, 1999)

62. K. Kakimoto, F. Wakai, J. Bill, and F. Aldinger Processing of Si-C-O Bulk Ceramics Derived from

Polycarbosilane Precursor 101st Annual Meeting of the American Ceramics Society, Indianapolis,

USA Abstracts, p. (April 25-28, 1999)

63. K. Kakimoto, F. Wakai, J. Bill, and F. Aldinger Microstructural Evaluation of Precursor Derived Si-

C-O Bulk Ceramics 1999 Fall Meeting of the Material Research Society, Boston, USA Abstracts, p. 104

(November - December 3, 1999)