

CURRICULUM VITAE

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Education

5/1988 Awarded the degree of PhD in Engineering for a thesis entitled
“Superplasticity of Zirconia Toughened Ceramics”,
Kyoto University, Japan
4/1978-3/1980 Master in Science, Kyoto University, Japan
4/1974-3/1978 Bachelor in Science, Kyoto University, Japan

Professional Experiences

4/2017- Professor, Laboratory for Materials and Structures, Institute of
Innovative Research, Tokyo Institute of Technology
4/2016-3/2017 Director, Laboratory for Materials and Structures, Institute of
Innovative Research, Tokyo Institute of Technology
4/2015-3/2016 Director, Materials and Structures Laboratory, Tokyo Institute of
Technology
4/1997- Professor, Materials and Structures Laboratory, Tokyo Institute of
Technology
1/1995-12/1999 Research director at Japan Science and Technology Corporation,
International Joint Research Program, Ceramics Superplasticity Project, Nagoya, Japan
10/1993-3/1997 Laboratory chief at National Industrial Research Institute of
Nagoya, Superplastic Nano-Science Laboratory, Structure
Formation Process Department, Nagoya, Japan
9/1992-8/1993 Guest scientist at Max-Planck Institut für Metallforschung,
Stuttgart, Germany (Alexander von Humboldt Foundation,
Research fellow)

4/1980

Senior researcher at Government Industrial Research Institute,
Nagoya, Ceramic Science Department, Nagoya, Japan

Awards

Academician, World Academy of Ceramics (8/2011)
Fellow of the American Ceramic Society (10/2008)
Academic Award of Ceramic Society of Japan (5/2004)
MITI Award of Agency of Industrial Science and Technology (6/1994)
Shimpo Award of Ceramic Society of Japan (4/1989)
Science and Technology Agency Award (4/1988)

Professional Activities

Executive board member, The Ceramic Society of Japan (6/2015 -5/2017)
Head of Engineering Ceramics Division, The Ceramic Society of Japan
(6/2015 -5/2017)
Alderman, Japan Society of Powder and Powder Metallurgy
Associate Editor of the Journal of the American Ceramic Society

Research Experiences

1978-80 Nuclear magnetic resonance of K_2CuF_4
1980-85 Mechanical properties of structural ceramics, High-efficiency gas turbine project (Fracture mechanics, Slow Crack Growth, Creep)
1985-present Superplasticity of ceramics (Deformation, mechanical experiment and theory)
2000-present Architectural design in sintering of ceramics (Theory and simulation)

10 Selected Publications

F. Wakai, K. Katsura, S. Kanchika, Y. Shinoda, T. Akatsu, K. Shinagawa, Sintering force behind the viscous sintering of two particles, *Acta Materialia*, **109**, 292-299 (2016).

K. Yoshida, F. Wakai, N. Nishiyama, R. Sekine, Y. Shinoda, T. Akatsu, T. Nagoshi, M. Sone, Large increase in fracture resistance of stishovite with crack extension less than one micrometer, *Scientific Reports*, **5**, 10993 (2015)

F. Wakai and O. Guillon, Evaluation of sintering stress from 3-D visualization of microstructure: Case study of glass films sintered by viscous flow and imaged by X-ray microtomography, *Acta Materialia*, **66**, 54-62 (2014).

F. Wakai and K.A. Brakke, Mechanics of sintering for coupled grain boundary and surface diffusion, *Acta Materialia*, **59**, 5379-5387 (2011).

F. Wakai and T. Akatsu, Anisotropic viscosities and shrinkage rates in sintering of particles arranged in a simple orthorhombic structure, *Acta Materialia*, **58**, 1921-1929 (2010).

F. Wakai and Y. Shinoda, Anisotropic sintering stress for sintering of particles arranged in orthotropic symmetry, *Acta Materialia*, **57**, 3955-3964 (2009).

F. Wakai, M. Yoshida, Y. Shinoda, T. Akatsu, Coarsening and grain growth in sintering of two particles of different sizes, *Acta Materialia*, **53**, 1361-1371 (2005).

F. Wakai, N. Enomoto, H. Ogawa, Three-dimensional microstructural evolution in deal grain growth-General statistics, *Acta Materialia*, **48**, 1297-1311 (2000).

F. Wakai, Y. Kodama, S. Sakaguchi, N. Murayama, K. Izaki and K. Niihara: A Superplastic Covalent Crystal Composite; *Nature*, **344** [6265] 421-423 (1990).

F. Wakai, S. Sakaguchi, Y. Matsuno, Superplasticity of Yttria-stabilized tetragonal ZrO₂ polycrystals, *Advanced Ceramic Materials*, **1**, 259-263 (1986).