

# Curriculum Vitae

## Toshiyuki NISHIMURA (Ph.D.)



Occupation: Group Leader, Structural Non-oxide Ceramics group,  
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### Personal Information

Date of Birth: June 13, 1962  
Place of Birth Tokyo, Japan  
Gender: Male

### Employment History

Apr. 2016 – present: Group Leader, National Institute for Materials Science  
Apr. 2013 – Mar. 2016: Chief researcher, National Institute for Materials Science  
Apr. 2003 – Mar. 2013: Principal researcher, National Institute for Materials Science  
Apr. 2001 - Mar. 2003: Senior researcher, National Institute for Materials Science  
Jul. 2000 - Jun. 2001: Specialist, Japanese Ministry of Education, Culture, Sports, Science and  
Technology.  
Apr. 1997 - Mar. 2001: Senior researcher, National Institute for Research in Inorganic  
Materials.  
Sep. 1996 - Aug. 1997: Guest scientist, Max-Planck Institute for Metals Research, Germany.  
Apr. 1993 - Mar. 1997: Researcher, National Institute for Research in Inorganic Materials.  
Apr. 1992 - Mar. 1993: Fellowships of the Japan Society for the Promotion of Science for  
Japanese Junior Scientists, Tokyo Institute of Technology.

### Education

Apr. 1989 - Mar. 1992: Doctoral course, Department of Inorganic Materials, Graduate school of  
Tokyo Institute of Technology, obtained Ph.D.  
Apr. 1987 - Mar. 1989: Master course, Department of Inorganic Materials, Graduate school of  
Tokyo Institute of Technology.  
Apr. 1983 - Mar. 1987: Department of Inorganic Materials, Tokyo Institute of Technology.

### Research fields

Fabrication of non-oxide ceramics  
Mechanical properties of non-oxide ceramics

### Publications

Original papers: 180  
Reviews: 9  
Books: 1  
Patents: 42

## PUBLICATION LISTS

### Original papers

1. Y. Matsuo, T. Nishimura, K. Yasuda, K. Jinbo, and S. Kimura, "Development of Cyclic CIP and Its Application to Powder Forming", Journal of the Ceramic Society of Japan (Yogyo-Kyokai-Shi) 95,12, (1987), 1226-1231.
2. T. Nishimura, K. Jinbo, Y. Matsuo, and S. Kimura, "Forming of Ceramic Powders by Cyclic-CIP -Effect of Bias Pressure-", Journal of the Ceramic Society of Japan (Searmikkusu Ronbunshi) 98,7, (1990), 735-738.
3. T. Nishimura, K. Jinbo, Y. Matsuo, and S. Kimura, "Forming of Ceramic Powders by Cyclic-CIP -Effect of frequency-", Journal of the Ceramic Society of Japan (Searmikkusu Ronbunshi) 98, 12, (1990), 1368-1371.
4. Y. Matsuo, T. Nishimura, K. Yasuda, K. Jinbo, and S. Kimura, "Forming of Silicon Carbide powder by Cyclic CIP", Journal of the Ceramic Society of Japan (Searmikkusu Ronbunshi) 99,3, (1991), 187-190.
5. T. Nishimura, Y. Matsuo, K. Jinbo, S. Kimura, "Forming of Ceramic Powders by Cyclic-CIP -Quantitative Evaluation of Densification Behavior-", J. Ceram. Soc. Japan 101[9] 985-990 (1993) (in Japanese).
6. S. Kimura, T. Nishimura, K. Yasuda, Y. Matsuo, "Forming of carbon powders by Cyclic-CIP and analysis of their densification behavior", J. Ceram. Soc. Japan 102[3] 280-283 (1994) (in Japanese).
7. Y. Matsuo, T. Kitamura, T. Nishimura, K. Yasuda, T. Hayashi, "Forming of alumina powder with lubricant by Cyclic-CIP", Materials System 13, 105-110 (1994) (in Japanese).
8. M. Mitomo, H. Hirotsuru, H. Suematsu, and T. Nishimura, "Fine-Grained Silicon Nitride Ceramics Prepared from  $\beta$ -Powder", Journal of the American Ceramic Society, 78, 1(1995), 211-214.
9. T. Nishimura, and M. Mitomo, "Phase relationships in the system  $\text{Si}_3\text{N}_4$ - $\text{SiO}_2$ - $\text{Yb}_2\text{O}_3$ ", Journal of Materials Research, 10, 2, (1995), 240-242.
10. T. Nishimura, M. Mitomo, H. Hirotsuru, and M. Kawahara, "Fabrication of silicon nitride nano-ceramics by spark plasma sintering", Journal of Materials. Science Letter, 14, (1995), 1046-1047.
11. T. Nishimura, M. Mitomo, H. Hirotsuru, "Fabrication of superplastic silicon nitride ceramics", Journal of the Japan Society of Powder and Powder Metallurgy 42[12] 1457-62 (1995) (in Japanese).
12. H. Hirotsuru, M. Mitomo, T. Nishimura, "Relation between grain growth and phase transformation of silicon nitride", J. Ceram. Soc. Japan, 103[5] 464-469 (1995) (in Japanese).
13. M. Mitomo, T. Nishimura, H. Hirotsuru, "Fabrication and grain growth behavior of fine-grained silicon nitride ceramics", European Journal of Solid State and Inorganic Chemistry, 32, (1995), 693-700.
14. H. Hirotsuru, M. Mitomo, T. Nishimura, "Grain growth behavior of fine-grained silicon nitride ceramics", Materials Science Forum, 204-206, (1996), 515-520.
15. H. Hirotsuru, M. Mitomo, T. Nishimura, "Influence of phase transformation on densification behavior and grain growth of fine silicon nitride powder", J. Ceram. Soc. Japan, 104[1] 23-27 (1996) (in Japanese).
16. M. Mitomo, T. Nishimura, M. Tsutsumi, "Crack healing in silicon nitride and alumina ceramics", Journal of Materials Science Letter, 15, (1996), 1976-1978.
17. T. Nishimura, M. Mitomo, H. Suematsu, "High temperature strength of silicon nitride ceramics with ytterbium silicon oxynitride", Journal of Materials Research, 12, (1997), 203-209.
18. T. Nishimura, M. Mitomo, A. Ishida, H. Yoshida, Y. Ikuhara, T. Sakuma, "Effect of  $\text{Al}_2\text{O}_3$  on high temperature mechanical properties of silicon nitride with  $\text{Yb}_4\text{Si}_2\text{O}_7\text{N}_2$ ", J. Ceram. Soc. Japan, 105 [9] 801-804 (1997) (in Japanese).
19. C.-M. Wang, M. Mitomo, T. Nishimura, Y. Bando, "Grain boundary Film Thicknesses in Superplastically Deformed Silicon Nitride", Journal the American Ceramic Society, 80, 5, (1997), 1213-1221.
20. T. Nishimura, R. Haug, J. Bill, G. Thurn, and F. Aldinger, "Mechanical and Thermal Properties of Si-C-N Material from Polyvinylsilazane", Journal of Materials Science 33, (1998), 5237-5241.
21. S. Hirai, K. Shimakage, Y. Saitou, T. Nishimura, Y. Uemura, M. Mitomo, "Synthesis and sintering of cerium(III) sulfide powders", Journal of the American Ceramic Society, 81, (1998), 145-151.
22. H. Sato, M. Mitomo, T. Nishimura, H. Emoto, "Mechanical properties of fine-grained silicon nitride ceramics", J. Ceram. Soc. Japan, 106 [2] 203-207 (1998) (in Japanese).

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26. Y. Yamamoto, N. Hirosaki, T. Nishimura, M. Mitomo, "Gas-pressure sintering of silicon nitride with  $\text{Yb}_4\text{Si}_2\text{O}_7\text{N}_2$  phase", *J. Ceram. Soc. Japan* 109, 453-56 (2001) (in Japanese).
27. H. Nozawa, T. Yanagitani, H. Tanaka, T. Nishimura, T. Mitsubishi, H. Haneda, "Mechanical properties of alumina/YAG-fiber composite", *J. Ceram. Soc. Japan* 109 [7] 607-11 (2001) (in Japanese).
28. S. Guo, N. Hirosaki, Y. Yamamoto, T. Nishimura, M. Mitomo, "Improvement of high-temperature strength of hot-pressed sintering silicon nitride with  $\text{Lu}_2\text{O}_3$  addition", *Scripta Materialia* 45, (2001), 867-874.
29. Y.-W. Kim, M. Mitomo, T. Nishimura, "Heat-resistant silicon carbide with aluminum nitride and erbium oxide", *JOURNAL. Am. Ceram. Soc.* 84, 9, (2001), 2060-2064.
30. S. Guo, N. Hirosaki, Y. Yamamoto, T. Nishimura, M. Mitomo, "Dependence of fracture stress on applied stress rate in a  $\text{Yb}_2\text{O}_3$ - $\text{SiO}_2$ -doped hot-pressed silicon nitride ceramics", *Journal of Materials Research* 16, 11, (2001), 3254-3261.
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43. H. Tanaka, N. Hirosaki, T. Nishimura, "Sintering of silicon carbide powder containing metal borides", *Journal of the Ceramic Society of Japan*, 111, 12, (2003), 878-882.
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characterization and high-temperature strength of hot-pressed silicon nitride ceramics with Lu<sub>2</sub>O<sub>3</sub> additives”, *Philosophical Magazine Letters*, 83, 6, (2003), 357-365.

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47. H. Tanaka, N. Hirosaki, T. Nishimura, D.-W. Shin, S.-S. Park, “Nonequaxial Grain Growth and Polytype Transformation of Sintered  $\alpha$ -Silicon Carbide and  $\beta$ -Silicon Carbide”, *Journal of the American Ceramic Society*, 86, 12, (2003), 2222-2224.
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53. M. Ohta, S. Hirai, S. Morita, T. Nishimura, Y. Uemura, “Phase transformation from tetragonal-phase to cubic-phase due to addition of titanium in lanthanum sesquisulfide”, *Journal of Alloys and Compounds*, 374, (2004), 116-119.
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56. H. Tanaka, T. Nishimura, N. Hirosaki, D. Jeong, “Enhanced Grain Growth in Porous Materials from  $\alpha$ - and  $\beta$ -SiC powder mixtures”, *Journal of the Ceramic Society of Japan.*, 113, 1, (2005), 51-54.
57. X. Xu, T. Nishimura, N. Hirosaki, R. Xie, Y. Zhu, Y. Yamamoto, H. Tanaka, “New Strategies for Preparing Nano Sized Silicon Nitride Ceramics”, *Journal of the American Ceramic Society*, 88, 4, (2005), 934-937.
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63. Y.-W. Kim, S.-H. Lee, T. Nishimura, M. Mitomo, “Heat-resistant silicon carbide with aluminum nitride and scandium oxide”, *Acta Materialia*, 53, 17, (2005), 4701-4708.
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65. X. Xu, T. Nishimura, N. Hirosaki, R. Xie, Y. Yamamoto, "Formation of fine-grained silicon nitride ceramics by high-energy ball milling and spark plasma sintering", *Key Engineering Materials*, 287, (2005), 166-170.
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73. X. Xu, T. Nishimura, N. Hirosaki, R. Xie, Y. Yamamoto, H. Tanaka, "Superplastic deformation of nano-size Si<sub>3</sub>N<sub>4</sub> ceramics with different amounts of sintering additives" *Scripta Materialia*, 55, 3, (2006), 215-217.
74. X. Xu, T. Nishimura, N. Hirosaki, R. Xie, Y. Yamamoto, H. Tanaka, "Superplastic deformation of nano-sized silicon nitride ceramics" *Acta Materialia*, 54, 1, (2006), 255-262.
75. S. Ishihara, H. Tanaka, T. Nishimura, "Synthesis of silicon carbide powders from fumed silica powder and phenolic resin", *Journal of Materials Research*, 21, 5, (2006), 1167-1174.
76. X. Xu, T. Nishimura, N. Hirosaki, R. Xie, Y. Yamamoto, H. Tanaka, "Effect of Sintering Additives on Superplastic Deformation of Nano-Sized  $\beta$ -Silicon Nitride Ceramics", *Journal of the American Ceramic Society*, 89, 5, (2006), 1745-1747.
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## Reviews

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## Book

1. T. NISHIMURA, X. XU, "Fabrication of Heat-Resistant and Plastic-Formable Silicon Nitride." NIMS MONOGRAPHS (2015) 1-46.

## Patents

Number of Registered domestic patents

31

List of registered international patents

1. No. US20070040206A1 High dielectric material composed of sintered body of rare earth sulfide (2007)
2. No. US20060201161A1 Cooling device for electronic component using thermo-electric conversion material (2006)
3. No. EP1594173A1 COOLING DEVICE FOR ELECTRONIC COMPONENT USING THERMO-ELECTRIC CONVERSION MATERIAL (2005)
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