BIOGRAPHICAL SKETCH

NAME

POSITION TITLE

Mitsuo Niinomi

Professor

EDUCATION/TRAINING

INSTITUTION AND LOCATION	DEGREE *(if applicable)*	YEAR(s)	FIELD OF STUDY
Nagoya University, Nagoya, Japan	Bachelor of Eng.	1973	Metallurgy
Nagoya University, Nagoya, Japan	Master of Eng.	1975	Metallurgy
Nagoya University, Nagoya, Japan	Graduate Research Student	1978	Metallurgy, and Iron and Steel Eng.
Nagoya University , Nagoya, Japan Aichi-Gakuin University, Nagoya, Japan	Dr. Eng. D. D. S	1979 2003	Metallurgy, and Iron and Steel Eng. Dental Materials Science

A. Positions and Honors

Positions and Employment

1980-1989 Research Associate, Department of Production Systems Engineering, Toyohashi University of Technology, Toyohashi, Japan 1988-1989 Visiting Associate Professor, Carnegie-Mellon University, Pittsburg, PA, USA
1989-1995 Associate Professor, Department of Production Systems Engineering, Toyohashi University of Technology, Toyohashi, Japan 1995-2005 Professor, Department of Production Systems Engineering, Toyohashi University of Technology, Toyohashi, Japan 1997 Visiting Professor, The University of Dayton, Dayton, OH, USA, Foreign Researcher, Material Institute, Wright Patterson Air Force Base, US Air Force, Dayton, OH, USA 2005- Professor, Division of Biomaterials Research, Institute of Materials, Tohoku University. Sendai, Japan

Other Experience and Professional Membership

1999-2002 Professor, Future Technology Center, Toyohashi University of Technology, Toyohashi, Japan 1999-2000 Chair of PTA of Noyori Elementary School, Toyohashi, Japan 2000-2001 Visiting Researcher, Sizuoka Research Institute, Shizuoka, Japan, and Hamamatsu Research Institute, Hamamatsu, Japan 2002 Lecturer (part time) with Tokyo University, Tokyo, Japan, Nagoya Institute of Technology, Nagoya, Japan, and Kyushu Institute of Technology, Hit Kyushu, Japan 2003-2005 Professor, Future Technology Center, Toyohashi University of Technology, Toyohashi, Japan 2005-2006 Visiting Professor and Lecturer (part time) with Toyohashi University of Technology, Toyohashi, Japan 2005-2006 Lecturer (part time) with Nagoya University, Nagoya, Japan 2005-2007 Specialist with Pharmaceuticals and Medical Devices Agency, Tokyo, Japan 2006-2008 Cooperate Member of Science Council of Japan, Tokyo, Japan Others:

1 International Organizing Committee Member of World Titanium Conference (Representative from Japan)

2. Member of Japan Institute of Metals Member of the Board of Directors (2006, 2007-2008), Chair of the Division 4th (Biomaterials and Healthcare

Material Division) (2003-2007), Member of Editorial Board, Member of Strategy Propulsion Committee, Member of the Board of Trustee

2 Member of Institute of Japan Light Metals Member of the Board of Directors (2007-2008), Member of the Board of Trustee, Member of Editorial Board

3 Member of Iron and Steel Institute of Japan Secretary of Titanium Workshop

4 Member of Japan Biomaterials Society Member of the Board of Directors (2006-2007), Member of the Board of Trustee

5 Member of TMS (Mineral, Metals and Materials Society (USA) Member of the Ti Committee

6 The Society of Materials Science, Japan Member of the Board of Trustee, Member of the Fatigue Workshop, Member of the Medical Division

7 Member of Japanese Society for Dental Materials and Devices

8 Member of The Japan Society of Mechanical Engineers

9 Member of Japan Foundry Engineering Society

10 Member of Institute of Materials (UK)

11 Member of ASM International (USA)

Honors

1986 Nagai Academic Award (Nagai Foundation) 1986 Best Technical Paper Award (Japan Institute of light Metals) 1994 Nishiyama Memorial Award (Iron and Steel Institute of Japan) 1993 Best Technical paper Award (Japan Institute of Light Metals) 2000 Technical Award (Japan Titanium Association) 2002 Technical Development Award (Japan Institute of Metals) 2003 Best Poster Presentation Award (JSME/ASME International Conference on Materials and Processing 2002) 2003 Best Technical Paper Award (Japan Institute of Metals) 2003 Nishio-city Award (Nishio-city) 2004 Best Technical Paper Award (Japan Institute of Metals) 2005 Award for Distinguished Contribution (Japan Institute of Light Metals 2005 Technical Development Award (Japan Institute of Metals) 2006 Kobayashi Award (Technical Paper Award) (Japan Foundry Engineering Soc.)2007 Best Paper Award (Japan Institute of Metals)

B. Selected peer-reviewed publications

(1) Mechanical Properties and Fracture Characteristics of Ti-6Al-4V and Ti-5Al-2.5Fe with Refined Microstructure Using Hydrogen, M.Niinomi, B.Gong, T.Kobayashi, Y.Oyabu and O.Toriyama, Met. Mat. Transaction A, 26A [5] (1995) 1141-1151.

(2) Fracture Characteristics, Microstructure and Tissue reaction of Ti-5Al-2.5Fe for Orthopedic Surgery, M.Niinomi,T.Kobayashi, O.Toriyama, N.Kawakami, Y.Ishida and Y.Matsuyama, Met. Mat. Trans. A, 27A [12] (1996) 3925-3935.

(3) Mechanical Properties of Biomedical Titanium Alloys, M. Niinomi, Materials Science and Engineering A, A243 (1998), 231-236.

(4) Design and Mechanical Properties of New Beta Type Titanium Alloys for Implant Materials, D. Kuroda, M. Niinomi, M.Morinaga, Y.Kato and T.Yashiro, Materials Science and Engineering A, A243 (1998) 244-249.

(5) Fatigue Characteristics of Ultra High Molecular Weight Polyethylene with Different Molecular Weight for Implant Materials, M. Niinomi, L.Wang, T.Enjitsu and K.Fukunaga, Journal of Materials Science: Materials in Medicine, 12 (2001) 267-272.

(6) Calcium Phosphate Invert Glass-Ceramic Coating Joined by Self-development of Compositionally Gradient Layers on a Titanium Alloy, T. Kasuga, M. Watanabe, M. Nogami and M. Niinomi, Biomaterials, 22(2001) 577-582.

(7) Recent Metallic Materials for Biomedical Applications, M. Niinomi, Met. Mat. Trans A, 32A [12] (2001) 477-486.

(8) Young's Modulus and Mechanical Properties of Ti-29Nb-13Ta-4.6Zr in Relation to α□Martensite, Y. L. Hao, M. Niinomi, D. Kuroda, K. Fukunaga, R. Yang and A. Suzuki Metallurgical and Materials Transactions A 33A [10] (2002) 3137-3144.

(9) Cyto-toxicityand Fatigue Performance of Low Rigidity Titanium Alloy, Ti-29Nb-13Ta-4.6Zr, for Biomedical Applications, M. Niinomi, Biomaterials, 24 (2003) 2673-2683.

(10) Deformation Behaviors of Ti-Nb-Ta-Zr System Alloys for Biomedical Applications, N. Sakaguchi, M. Niinomi and T. Akahori, Mat. Transactions, 45 [4] (2004) 1113-1119.

(11) Fatigue, Fretting Fatigue and Corrosion Characteristics of Biocompatible Beta Type Titanium Alloy Conducted with Various Thermo-mechanical Treatments, T. Akahori, M. Niinomi, H. Fukui and A. Suzuki, Mat. Transactions, 45 [5] (2004) 1540-1548.

(12) Fatigue Characteristics of Bioactive Glass-ceramic Coated Ti-29Nb-13Ta-4.6Zr for Biomedical Application, S. J.

Li ,

M. Niinomi, T. Akahori, T. Kasuga, R. Yang and Y. L. Hao, Biomaterials, 25 [17] (2004) 3341-3349.

(13) Cyto-toxicity and Fatigue Performance of Low Rigidity Titanium Alloy, Ti-29Nb-13Ta-4.6Zr, for Biomedical Applications, M. Niinomi, Biomaterials, 24 (2003) 2673-2683.

(14) Nanotube Oxide Coating on Ti-29Nb-13Ta-4.6ZrAlloy Prepared by Self-organizing Anodization, Electrochimica, H. Tsuchiya, J. M. Macak, A. Ghicov, Y. C. Tang, S. Fujimoto, M. Niinomi, T. Noda and P. Schmuki, 52 (2006) 94-101

(15) Japanese Research and Development in Metallic Biomedical, Dental and Healthcare Materials, M. Niinomi, T. Hanawa and T. Narushima. JOM, 57 [4] (2005) 18-24.

(16) Mechanical Properties and Cyto-toxicity of Newly Designed Beta Type Titanium Alloys with Low Melting Points for Dental Applications, M. Niinomi, T. Akahori, T. Takeuchi, S. Katsura, H. Fukui and H. Toda, Materials Science and Engng. C, 25 (2005) 417-425.

(17) Effect of Ta Content on Mechanical Properties of Ti-30Nb-XTa-5Z, N. Sakaguchi, M. Niinomi, T. Akahori, J. Takeda and H. Toda, Mater. Sci. and Engng. C, 25 (2005) 370-376.

(18) Relationships between Tensile Deformation Behaviors and Microstructures of Ti-Nb-Ta-Zr System Alloys ,N. Sakaguchi, M. Niinomi, T. Akahori, J. Takeda and H. Toda, Mater. Sci. and Engng. C, 25 (2005) 363-369.

(19) Tensile and Fatigue Evaluation of Ti-15Al-33Nb (at.%) and Ti-21Al-29Nb (at.%) Alloys for Biomedical Applications,

C. J. Boehlert, C. J. Cowen, R. Jaeger, M. Niinomi and T. Akahori, Mater. Sci. and Engng. C, 25 (2005) 263-275.

(20) Nanotube Oxide Coating on Ti-29Nb-13Ta-4.6ZrAlloy Prepared by Self-organizing Anodization, Electrochimica, H. Tsuchiya, J. M. Macak, A. Ghicov, Y. C. Tang, S. Fujimoto, M. Niinomi, T. Noda and P. Schmuki, 52 (2006) 94-10.

(21) Mechanical Characteristics and Microstructure of Drwan Wire of Ti-29Nb-13Ta-4.6Zr for Biomedical Applications, M. Niinomi, T. Akahori, S. Katsura, K. Yamauchi and M. Ogawa, Materialc Science and Engineering C, 27 (2007) 154-161.

(22) Hybridization of Biomedical Beta Type Titanium Alloy and Bioactive Ceramic by Electrochemical Treatment, M. Niinomi and T. Akahori, Advanced in Technology of Materials and Materials Processing Journal (ATM), 9 [2] (2007) 9-16.

(23) Recent Research and Development in Metallic Materials for Biomedical, Dental and Healthcare Products Applications,

M. Niinomi, Materials Science Forum, 539-543 (2007) 193-200.

(24) Fabrication of Ti-6Al-7Nb by Metal Injection Molding, Y. Itoh, H. Miura, K. Sato and M. Niinomi Materials Science Forum, 534-536 (2007) 357-369.

(25) Mechanical Properties and High Temperature Deformation of Beta Titanium Alloys, Q. Zhou, G. Itoh and M. NiinomiMaterials Science Forum, 546-549 (2007) 1379-1382.

Total number of technical papers: 273 Total number of international conference papers: 166 Total number of review papers and report: 185 Total number of books: 11 Total number of patents: 10

C. Research Support

Ongoing Research Support

(1) Research and Development of Metallic Spinal Rod, April 2006-March 2007, Japan Science and Technology

(2) Research on the Development of Implant System for Tissue Regeneration, April 2006-March 2007, New Energy and Industrial Technology Development Organization

(3) Development of Superelastic Functional Titanium Alloy with Low Modulus for Biomedical Applications through Nano-stuructural Control, Grant-in-Aide for Scientific Research A, April 2003-March 2007, Japan Society for the Promotion of Science.

Completed Research Support

(1) Development of Highly Biocompatible Titanium Alloy for Biomedical and Healthcare Applications, April 1998-March 2001, Grant-in-Aide for Scientific Research B, Japan Society for the Promotion of Science.

(2) Microstructure and Corrosion Fatigue Mechanism of Low Noble Dental Alloy, April 1998-March 2001, Grant-in-Aide for Scientific Research B, Japan Society for the Promotion of Science.

(3) Research and Development of Dental Precision Casting Process for Highly Biocompatible Titanium Alloys, April 200- March 2003, Grant-in-Aide for Scientific Research for Promoting Regional Cooperating Research, Japan Society for the

Promotion of Science.

(4) Research and Development of Fabrication Technology of Hybrid-type Biocompatible Materials forReplacing Hard Tissue, April 1998-March 2001, Regional Consortium Project, Industrial Technology Development Organization.

(5) Development of Precision Casting Process for Fabricating Low Machinable Products for Medical and Healthcare Applications, April 2002-March 2003, New Regional Consortium Project, Ministry of Economy, Trade and Industry.

(6) Development of Fabrication System for Low Cost Functional Metallic Products by MIM, New Regional Consortium Project , April 2003-March 2005, Ministry of Economy, Trade and Industry.

Editorial board member of academic journals

English journal

1 Materials Transactions (published by Japan Institute of Metals)
2 Journal of the Mechanical Behavior of Biomedical Materials (published by Elsevier)

Japanese journal

1 Journal of Japan Institute of Metals (published by Japan Institute of Metals)
2 Journal of Japan Institute of Light Metals (published by Japan Institute of Light Metals)

International conferences at which MN played a role of chairperson:

1 Thermec'97, July 7-11, 1997, Wollongong, Australia.
2 Japan-China Workshop on Titanium Alloys and Titanium Intermetallics, March 3-5, 1997, Tsukuba, Japan.
3 ISAEM'97, Oct. 29-31, 1997, Toyohashi, Japan.
4 Symp. Non-aerospace Applications of Titanium, 1998 TMS Annual Meeting, Feb. 16-19, 1998, San Antonio, Texas.
5 ICAA-6, July 5-10, 1998, Toyohashi, Japan.
6 Xi'an Titanium Int. Conf., Sept. 15-18, 1998, Xi'an, China.
7 9th World Conf. on Titanium, June 7-11, 1999, St. Petersburg, Russia.

8.Thermec'2000, Int. Conf. on Processing & Manufacturing of Advanced Materials, Processing, Fabrication, Properties, Applications, Dec. 4-8, 2000, Las Vegas, U.S.A.

1 ISAEM'2000, Oct. 20-21, 2000, Guilin, China.
2 Int. Conf. on Light Materials for Transportation Systems (LiMAT2001), May 6-9, 2001, Pusan, Korea.
3 Third International Symposium on Fretting Fatigue, May 15-18, 2001, Nagaoka, Japan.
4 Symp. Structural Biomaterials for the 21st Century, 2001 TMS Annual Meeting, Feb., 11-12, 2001, New Orleans, LA, U.S.A.
5 Thermec'2003, July 7-11, 2003, Leganès, Madrid, Spain.
6 10th World Conference on Titanium, July 13-18, 2003, Hamburg, Germany.
7 ISAEM'2003, Sept. 2-5, 2003, Jeju Island, Korea.
8 3rd Int. Conf. on Light Materials for Transportation Systems (LiMAT2003), Nov. 2-6, 2003, Hilton Hawaiian Village, Honolulu, Hawaii, U.S.A.
9 PRICM5, Nov. 2-5, 2004, Beijing, China.
10 Thermec'2006, July 4-8, Vancouver, Canada.
11 Symp. Titanium for Healthcare, Biomedical, and Dental Applications, 2004 TMS Fall Meeting, Sep. 26-29, 2004, New Orleans, LA, U.S.A.
12 15th Int. Symp. Processing and Fabrication of Advanced Materials, MT & T, Oct.15-19, 2006, Cincinnati, Oh, U.S.A.
13 Symp. Advanced Processing of Biomaterials, MT & T, Oct. 15-19, 2006, Cincinnati, OH, U.S.A.

14 The Korea-China on Biomaterials & Nano-biotechnology conjugated with the Asia Core University Program, Oct. 19-24, 2006, Jeju, Korea.

Keynote and invited talks at international conferences:

1 High Biocompatible Metallic Materials, The 3rd Int. Conf. on Ecomaterials, Sept. 10-12, 1997, Tsukuba, Japan (Invited Talk).
2 Corrosion Wear Fracture of New βType Biomedical Titanium Alloys, Xi'an Titanium Int. Conf., Sept. 15-18, 1998, Xi'an, China (Invited Talk).
3 New β-type Titanium Alloys with High Biocompatibility, TMS Symp. on Non-aerospace Applications of titanium, Fe. 16-19, 1998, San Antonio, Texas, USA (Invited Talk).
4 Thermomechanical Processing and Mechanical Properties of a New β-Type Titanium Alloy, Thermec'2000, Int. Conf. on Processing & Manufacturing of Advanced Materials, Processing, Fabrication, Properties, Applications, Dec. 4-8, 2000, Las Vegas, U.S.A. (Invited Talk).
5 The Influence of Microstructure on Elastic Modulus of New β-Type Titanium Alloys, Thermec'2000, Int. Conf. on Processing & Manufacturing of Advanced Materials, Processing, Fabrication, Properties, Applications, Dec. 4-8, 2000, Las Vegas, U.S.A (Invited Talk).
6 Effects of Precipitated Intermetallics on Fracture Characteristics of Ti6Al-2Sn-2Zr-2Mo-2Cr-Si, International Conference on Light Materials for Transportation Systems (LiMAT2001), May 6-9, 2001, Pusan, Korea (Invited Talk).
7 Recent Biocompatible Metallic Materials, TMS Symp. on Structural biomaterials for the 21st Century, Feb. 11-12, 2001, New Orleans, LA, USA (Keynote Talk)
8 Fatigue Characteristics and Microstructure of Titanium Alloys for Biomedical Applications, Fatigue'2002, June 2-7, 2002, Stockholm, Sweden (Keynote Talk).
9 Recent Trends in Development of Titanium Based Materials for Biomedical Applications, CTMTEC; 10th Int. Ceramics Congress & 3rd Forum on New Materials, July 14-18, 2002, Florence, Italy (Solicited Talk).
10 Effect of Cu-Ni Plasma Coating on Fretting Fatigue Characteristics of Ti-6Al-4V Under Flat-on-Flat Contact, Thermec'2003, July 7-11, 2003, Leganès, Madrid, Spain (Invited Talk).
11 Fatigue Characteristics of Dental Titanium Alloy, Ti-6Al-7Nb, Conducted with Thermochemical Heat Processing, Thermec'2003, July, 7-11, 2003, Leganès, Madrid, Spain (Invited Talk).
12 Effects of Casting Deffects and Microstructure on Fatigue Properties of Cast Ag-Pd-Cu-Au-Zn Alloy for Dental Applications, Thermec'2003, July 7-11, 2003, Leganès, Madrid, Spain (Invited Talk).
13 Titanium Alloys for Medical and Dental Applications, Medical Devices Materials, ASM Materials & Processes for Medical Devices Conf., Sept. 8-10, 2003, Anaheim, California, U.S.A. (Lead Presentaion).
14 Reciprocal tribocontact of Biomedical Alloys, ISAEM'2003, Nov. 5-8, 2003, Jeju Island, Korea (Invited Talk).
15 Wear and Bioconductibity Characteristics of Oxidized Ti-29Nb-13Ta-4.6Zr, ISAEM'2003, Nov. 5-8, 2003, Jeju Island, Korea (Invited Talk).
16 Fatigue Performance of Low Rigidity Titanium Alloy for Biomedical Applications, ISAEM'2003, Nov. 5-8, 2003, Jeju Island, Korea, (Invited Talk).
17 Effects of Alloying Elements on Elastic Modulus of Ti-Nb-Ta-Zr System Alloy for Biomedical Applications, ISAEM'2003, Nov. 5-8, 2003, Jeju Island, Korea (Invited Talk).
18 Effect of Contact Pressure and Surface Roughness on Fretting Fatigue Characteristics of High Workable Titanium Alloy, Ti-4.5Al-3V-2Mo-2Fe, the 3rd Int. Conf. on Light Materials for Transportation Systems (LiMAT2003), Nov. 2-6, 2003, Hilton Hawaiian Village, Honolulu, Hawaii, U.S.A. (Invited Talk).
19 Dental Precision Casting of Ti-29Nb-13Ta-4.6Zr Using Calcia Mold, PRICM5, Nov. 2-5, 2004, Beijing, China (Invited Talk).
20 Research and Development of Low Modulus and Super Elasctic Ti-29Nb-13Ta-4.6Zr Alloy for Biomedical Applications, the 4th Asian International Symp. Biomaterials, the 2nd International Symp.on Fusion of Nano and Bio Technologies, Nov. 16-18, 2004, Tukuba Interenational Congress Center, Japan (Invited Talk).

21. Bioactive Surface Modification to Improve Hard Tiossue Compability of Beta-type Titanium Alloy, ICMAT (International Conference on Materials for Advanced Technologies 2005) & IUMRS-ICAM (the 9th International Conference on Advanced Materials), July 3-8, 2005, Suntec Singapore International Convention & Exhibition Centre, Singapore, (Invited Talk).

21 Biocompatible Titanium Alloys Containing a Large Amount of Nb and Ta, Int. Symp. Ta and Nb, Oct. 16-20, 2005, Pattaya, Thailand (Invited Talk).

22 Fatigue Characteristics of Metallic Biomaterials, First Int. Conf. on Mechanics of Biomaterials & Tissues, Dec. 11-14, 2005, Hawaii, U.S.A. (Invited Talk).

23 Hybridization of Biomedical Beta Type Titanium Alloy and Bioactive Ceramic by Electrochemical Treatment, HNM 2006, Feb. 3-5, 2006, Ngaoka, Japan (Invited Talk).

24 Recent Research and Development in Metallic Materials for Biomedical, Dental and Healthcare Products, Thermec'2006, July, 4-8, 2006, Vancouver, Canada (Keynote Talk).

25 Improvement in Wear Resistance of Beta-type Titanium Alloy for Biomedical Applications by Surface Coating of Hard Layer, the 15th Int. Symp. Processing and Fabrication of Advanced Materials, MT & T, Oct. 15-19, 2006, Cincinnati, OH, U.S.A. (Invited Talk).

26 Titanium Alloys for Biomedical, Dental, and Healthcare Applications, the 11th World Conf. on Titanium, June 3-7, 2007, Kyoto, Japan (Keynote Talk).

27 Dental Applications of β -type Ti-Nb-Ta-Zr Based Alloys, the6th Int. Symp. on Titanium in Dentistry June, 5-6, 2007, Kyoto, Japan (Invited Talk).