

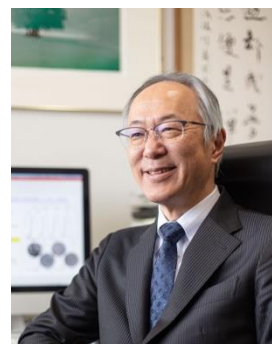
Tadashi Furuwara

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【Research interest】

- Thermodynamics, kinetics, crystallography of phase transformations in metals and alloys
- Microstructure control of ferrous and non-ferrous alloys by thermomechanical processing
- Surface hardening treatment of steels
- Deformation, recrystallization and superplasticity of metallic materials
- Shape memory effect and pseudoelasticity of metallic materials

【Education】

1983 BEng Department of Metal Science and Technology, Kyoto University

1985 MEng Department of Metal Science and Technology, Kyoto University

1989 Ph.D Department of Metallurgical Engineering and Materials Science,
Carnegie Mellon University

【Professional experience】

1989.10~1997.7 Research Associate, Department of Metal Science and Technology,
Kyoto University

1997.8~2005.9 Associate Professor, Department of Materials Science and Engineering,
Kyoto University

2005.10~present Professor, Institute for Materials Research (IMR), Tohoku University

2009.11~2013.3 Deputy Director, IMR

2010.4~2013.3 Head of Integrated Materials Research Center for a Low-Carbon Society, IMR

2015.4~2019.3 Head of Cooperative Research and Development Center for Advanced Materials,
IMR

2018.4~2020.3 Deputy Director, IMR

2020.4-2023.3 Director, IMR

【Academic society】

Domestic: The Japan Institute of Metals and Materials, The Iron and Steel Institute of Japan,
The Japan Society for Heat Treatment,

International: The Minerals, Metals & Materials Society (TMS), ASM International (ASMI)

【Selected publications】

- [1] T. Furuhashi, Y. Zhang, M. Sato, G. Miyamoto, M. Enoki, H. Ohtani, T. Uesugi, H. Numakura: "Sublattice alloy design of high strength steels - application of nanoscale clustering of interstitial and substitutional solutes -", *Scripta Materialia*, 223(2023), 115063
- [2] T. Furuhashi, Y. Zhang, G. Miyamoto: "Roles of transformation interface in the design of advanced high strength steel", *IOP Conference Series: Materials Science and Engineering*, 580(2019), 012005.
- [3] X. Zhang, G. Miyamoto, Y. Toji, S. Nambu, T. Koseki, T. Furuhashi: "Orientation of austenite reverted from martensite in Fe-2Mn-1.5Si-0.3C alloy ", *Acta Materialia*, 144(2018), 601-612.
- [4] M. Sato, S. Matsumoto, G. Miyamoto, T. Furuhashi: " Microstructure of reverted austenite in Fe-0.3N martensite", *Scripta Materialia*, 156(2018), 85-89.
- [5] T. Furuhashi, T. Chiba, T. Kaneshita, H. Wu, G. Miyamoto: "Crystallography and Interphase Boundary of Martensite and Bainite in Steels", *Metallurgical and Materials Transactions A*, 48(2017), 2739-2752.
- [6] N. Kamikawa, K. Sato, G. Miyamoto, M. Murayama, N. Sekido, K. Tsuzaki, T. Furuhashi: "Stress-strain behavior of ferrite and bainite with nano-precipitation in low carbon steels", *Acta Materialia*, 83(2015), pp. 383-396.
- [7] T. Furuhashi: "Phase transformations in steels", Vol. 1, Chapter 11, Woodhead Publishing Limited, 2012.
- [8] G. Purdy, J. Agren, A. Borgenstam, Y. Brechet, M. Enomoto, T. Furuhashi, E. Gamsjager, M. Goune, M. Hillert, C. Hutchinson, M. Militzer, H. Zurob: "ALEMI: A Ten-Year History of Discussions of Alloying-Element Interactions with Migrating Interfaces", *Metallurgical and Materials Transactions A*, 42(2011), 3703-3718
- [9] G. Miyamoto, N. Iwata, N. Takayama, T. Furuhashi: "Mapping the parent austenite orientation reconstructed from the orientation of martensite by EBSD and its application to ausformed martensite", *Acta Materialia*, 58(2010), 6393-6403.
- [10] T. Furuhashi, K. Kikumoto, H. Saito, T. Sekine, T. Ogawa, S. Morito, T. Maki, "Phase Transformation from Fine-Grained Austenite", *ISIJ International*, 48(2008), 1038-1045.
- [11] T. Furuhashi, B. Poorganji, H. Abe, T. Maki: "Dynamic Recovery and Recrystallization in Titanium Alloys by Hot Deformation", *JOM*, 59(2007), 64-67.
- [12] H. I. Aaronson, T. Furuhashi, J. P. Hirth, J. F. Nie, G. R. Purdy and W. T. Reynolds, Jr.: "On the Mechanism of Formation of Diffusional Plate-shaped Transformation Products", *Acta Materialia*, 54(2006), 1227-1232.
- [13] T. Furuhashi, S. Annaka, Y. Tomio, T. Maki: "Superelasticity in Ti-10V-2Fe-3Al alloys with nitrogen addition", *Materials Science and Engineering A*, Vol. 438-440, 2006, pp. 825-829.
- [14] T. Furuhashi, T. Maki: "Grain Boundary Engineering for Superplasticity in Steels", *Journal of Materials Science*, 40(2005), 919-926.

- [15] S. Morito, H. Tanaka, R. Konishi, T. Furuhashi, T. Maki: "The Morphology and Crystallography of Lath Martensite in Fe-C Alloys", *Acta Materialia*, 51(2003), 1789-1799.
- [16] T. Furuhashi, J. Yamaguchi, N. Sugita, G. Miyamoto, T. Maki: "Nucleation of Proeutectoid Ferrite on Complex Precipitates in Austenite", *ISIJ International*, 43(2003), 1630-1639.
- [17] T. Furuhashi, K. Oishi, T. Maki: "Interphase Boundary Structure with Irrational Orientation Relationship Formed in Grain Boundary Precipitation", *Metallurgical and Materials Transactions A*, 33(2002), 2327-2335.
- [18] T. Furuhashi, T. Maki: "Variant selection in heterogeneous nucleation on defects in diffusional phase transformation and precipitation", *Materials Science and Engineering A*, 312(2001), 145-154.
- [19] T. Furuhashi, J. M. Howe, H. I. Aaronson: "Interphase Boundary Structures of Intragranular Proeutectoid α Plate in a Hypoeutectoid Ti-Cr Alloy", *Acta Metallurgica et Materialia*, 39(1991), 2873-2886.
- [20] M. Umemoto, T. Furuhashi, I. Tamura: "Effects of Austenitizing Temperature on the Kinetics of Bainite Reaction at Constant Austenite Grain Size in Fe-C and Fe-Ni-C Alloys", *Acta Metallurgica*, 34(1986), 2235-2245.