

Yanfei Gao

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Education and Training:

Princeton University, NJ	Ph.D.	2003	Mechanical & Aerospace Engng.
Princeton University, NJ	M.A.	2001	Mechanical & Aerospace Engng.
Tsinghua University, Beijing, China	B.S.	1999	Engineering Mechanics
Tsinghua University, Beijing, China	B.S.	1999	Computer Science

Professional Experience:

2011-present Associate Professor, Department of Materials Science and Engineering, University of Tennessee, Knoxville; & Joint Faculty, Materials Science and Technology Division, Oak Ridge National Laboratory

2005-2011 Assistant Professor, Department of Materials Science and Engineering, University of Tennessee, Knoxville; & Joint Faculty, Computer Science and Mathematics Division, Oak Ridge National Laboratory

2003-2005 Postdoctoral research associate, Division of Engineering, Brown University

Professional Activities, Honors, Awards:

Member of the Minerals, Metals & Materials Society (TMS), the American Society of Mechanical Engineers (ASME), and the Materials Research Society (MRS)

Chancellor's Award for Professional Promise in Research and Creative Achievement, UT, 2010

Co-winner, R&D 100 award on *High-Performance, High-T_c Superconducting Wires Enabled via Self-Assembly of Non-Superconducting Columnar Defects*, with A. Goyal et al. at ORNL, 2010

Sir Gordon Wu Fellowship, Princeton University, 1999-2003

Selected Peer-Reviewed Publications: (total > 70 refereed journal papers)

Y.H. Zhang, Y.F. Gao, and L. Nicola. "Lattice rotation caused by wedge indentation of a single crystal: dislocation dynamics compared to crystal plasticity simulations," *J. Mech. Phys. Solids* **68**, 267 (2014)

D. Catoor, Y.F. Gao, J. Geng, M.J.N.V. Prasad, E.G. Herbert, K.S. Kumar, G.M. Pharr, and E.P. George. "Incipient plasticity and deformation mechanisms in single-crystal Mg during spherical nanoindentation," *Acta Mater.* **61**, 2953 (2013)

S.H. Wee, Y.F. Gao, Y.L. Zuev, K.L. More, J.Y. Meng, J.X. Zhong, G.M. Stocks, and A. Goyal. "Self-assembly of nanostructured, complex, multication films via spontaneous phase separation and strain-driven ordering," *Adv. Func. Mater.* **23**, 1912 (2013)

J.H. Lee, Y.F. Gao, K.E. Johanns, and G.M. Pharr. "Cohesive interface simulations of indentation cracking as a fracture toughness measurement method for brittle materials," *Acta Mater.* **60**, 5448 (2012)

L.L. Zheng, Y.F. Gao, S.Y. Lee, R.I. Barabash, J.H. Lee, and P.K. Liaw. "Intergranular strain evolution near fatigue crack tips in polycrystalline metals," *J. Mech. Phys. Solids* **59**, 2307 (2011)

C. Cantoni, Y.F. Gao, S.H. Wee, E.D. Specht, J. Gazquez, J.Y. Meng, S.J. Pennycook, and A. Goyal. "Strain-driven oxygen deficiency in self-assembled, nanostructured, composite oxide films," *ACS Nano* **5**, 4783 (2011)

T.L. Li, Y.F. Gao, H. Bei, and E.P. George. "Indentation Schmid factor and orientation dependence of nanoindentation pop-in behavior of NiAl single crystals," *J. Mech. Phys. Solids* **59**, 1147 (2011)

Y.F. Gao. "A Peierls perspective on mechanisms of atomic friction," *J. Mech. Phys. Solids* **58**, 2023 (2010)

Y.F. Gao, H.H. Yu, and K.-S. Kim. "Micro-plasticity of surface steps under adhesive contact: Part II – multiple-dislocation mediated contact hardening," *J. Mech. Phys. Solids* **56**, 2759 (2008)

Y.F. Gao, H.T. Xu, W.C. Oliver, and G.M. Pharr, “Effective elastic modulus of film-on-substrate systems under normal and tangential contact,” *J. Mech. Phys. Solids* **56**, 402 (2008)

Synergistic Activities:

Co-editor: (i) Special Issue in Bulk Metallic Glasses, *Metallurgical and Materials Transactions A*, volume 39, no. 8, August 2008; (ii) Special Issue in Bulk Metallic Glasses, *Advanced Engineering Materials*, volume 10, no. 11, November 2008; (iii) Special Issue in Bulk Metallic Glasses, *Metallurgical and Materials Transactions A*, vol. 41, no. 7, July 2010; (iv) Special Issue in Self-Assembly and Directed Self-Assembly, *Journal of Materials Research*, vol. 26, no. 2, January 2011; (v) Special Issue in Bulk Metallic Glasses, *Metallurgical and Materials Transactions A*, vol. 42, no. 6, June 2011; (vi) Special Issue in Bulk Metallic Glasses, *Metallurgical and Materials Transactions A*, vol. 43, no. 8, August 2012; (vii) Special Issue in Bulk Metallic Glasses, *Metallurgical and Materials Transactions A*, vol. 44, no. 5, May 2013; (viii) Special Issue in Bulk Metallic Glasses, *Metallurgical and Materials Transactions A*, vol. 45, no. 5, May 2014.

Symposium Co-Organizer, TMS Annual Meeting & Exhibition: (i) *Bulk Metallic Glasses IV*, Orlando, 2/26-3/1/2007; (ii) *Bulk Metallic Glasses V*, New Orleans, 3/9-3/13/2008; (iii) *Bulk Metallic Glasses VI*, San Francisco, 2/15-2/19/2009; (iv) *Bulk Metallic Glasses VII*, Seattle, 2/14-2/18/2010; (v) *Bulk Metallic Glasses VIII*, San Diego, 2/27-3/3/2011; (vi) *Bulk Metallic Glasses IX*, New Orleans, 3/11-3/15/2012; (vii) *Bulk Metallic Glasses X*, San Antonio, 3/3-3/7/2013; (viii) *Bulk Metallic Glasses XI*, San Diego, 2/16-2/20/2014.

Frequent Reviewer and Panelist for National Science Foundation and Department of Energy.

Collaborators from other Institutions (past 48 months):

A.F. Bower (Brown University), R.I. Barabash (Oak Ridge National Laboratory), H. Bei (Oak Ridge National Laboratory), E.P. George (Ruhr University), A. Goyal (Oak Ridge National Laboratory), B.C. Larson (Oak Ridge National Laboratory), P.K. Liaw (University of Tennessee), J. Lou (Rice University), A.M. Minor (University of California, Berkeley), M.J. Mills (Ohio State University), J.R. Morris (Oak Ridge National Laboratory), A. Needleman (University of North Texas), T.G. Nieh (University of Tennessee), W.C. Oliver (Nanomechanics Inc.), G.M. Pharr (University of Tennessee), T.L. Sham (Oak Ridge National Laboratory), Z.Y. Zhang (University of Science and Technology China)

Graduate and Postdoctoral Advisors and Advisees:

Ph.D. Advisor: Zhigang Suo, now at Harvard University

Postdoctoral Advisors: Allan F. Bower and Kyung-Suk Kim, Brown University

Thesis Advisor and Postgraduate-Scholar Sponsor:

Graduate Students: (10) – Fengxiao Liu (Schlumberger), Tianlei Li (Florida State U.), Jianyong Meng (Microsoft), Lili Zheng (Hitachi America), Weidong Li (Corning), Lin Li (Eli Lilly), Yuzhi Xia (3M), Haoling Jia (current), Chao Pu (current), Tingkun Liu (current)

Postdoctoral scholars: (4) – Jin Haeng Lee (Korea Atomic Energy Research Institute), Erik G. Herbert (U. Tennessee), Shunfang Li (Zhengzhou U.), Lili Zheng (Hitachi America)

Research faculty: (4) – Sung Hun Wee (ORNL), M. Claudia Troparevsky (ORNL), Yuan Wu (U. Sci. Tech. Beijing), Yan Liu (practicing physician)