

Nathan W. Klingbeil

Associate Professor

Robert J. Kegerreis Distinguished Professor of Teaching

Date of Initial Appointment: September 1, 1999 (6 years of service)

Education

Institution	Field of Study	Degree/Date
Carnegie Mellon University	Mechanical Engineering	Ph.D., 1998
Carnegie Mellon University	Mechanical Engineering	M.E., 1995
University of Dayton	Mechanical Engineering	B.M.E., 1993

Professional Experience

Position	Institution	Dates
Associate Professor	Wright State University, Mech. & Mat. Eng.	09/04-Present
Assistant Professor	Wright State University, Mech. & Mat. Eng.	09/99-08/04
Materials Research Engineer	Air Force Research Laboratory (AFRL/MLLN)	06/98-08/99
Graduate Research Assistant	Carnegie Mellon University, Dept. of Mech. Eng.	06/94-06/98
Graduate Teaching Assistant	Carnegie Mellon University, Dept. of Mech. Eng.	08/93-05/94
Undergraduate Teaching Assistant	University of Dayton, Dept. of Mathematics	08/91-05/93
Engineering Co-Op	DAP, Inc.	05/91-08/93

Principal Publications (Last 5 Years)

1. Klingbeil, N.W., Mercer, R.E., Rattan, K.S., Raymer, M.L. and Reynolds, D.B., 2005, "The WSU Model for Engineering Mathematics Education," *Proceedings 2005 ASEE Annual Conference & Exposition*, Portland, Oregon, June, 2005.
2. Klingbeil, N.W., Mercer, R.E., Rattan, K.S., Raymer M.L. and Reynolds, D.B., 2005, "Redefining Engineering Mathematics Education at Wright State University," *Proceedings 2005 ASEE North Central Conference*, Ada, Ohio, April 2005.
3. Klingbeil, N.W., Bontha, S. Beuth, J.L., Birnbaum, A. and Aggarangsi, P., 2005, "Prediction and Control of Melt Pool Size and Microstructure in Laser-Based Additive Manufacturing," *Proceedings 2005 NSF DMII Grantees and Research Conference*, Scottsdale, Arizona, January 2005.
4. Klingbeil, N.W., Bontha, S., Brown, C.J., Gaddam, D.R., Kobryn, P.A., Fraser, H.L. and Sears, J.W., 2004, "Effects of Process Variables and Size Scale on Solidification Microstructure in Laser-Based Solid Freeform Fabrication of Ti-6Al-4V," *Solid Freeform Fabrication Proceedings*, (D.L. Bourell, R. H. Crawford, J.J. Beaman, K.L. Wood, H.L. Marcus, eds.), Austin, August 2004.
5. Daily, J.S. and Klingbeil, N.W., 2004, "Plastic Dissipation in Fatigue Crack Growth Under Mixed-Mode Loading," *International Journal of Fatigue*, Vol. 26, No. 7, pp. 727-738.
6. Klingbeil, N.W., Mercer, R.E., Rattan, K.S., Raymer, M.L. and Reynolds, D.B., 2004, "Rethinking Engineering Mathematics Education: A Model for Increased Retention, Motivation and Success in Engineering," *Proceedings 2004 ASEE Annual Conference & Exposition*, Salt Lake City, Utah, June 2004.
7. Birnbaum, A., Aggarangsi, P., Beuth, J., Bontha, S. and Klingbeil, N., 2004, "Control of Melt Pool Size and Microstructure in Laser-Based Additive Manufacturing Processes," *Proceedings 2004 NSF Design, Service and Manufacturing Grantees and Research Conference*, Dallas, Texas, January 2004.
8. Klingbeil, N.W. and Bontha, S., 2003, "A Maximum Allowable Flaw Size for Debond-Resistant Bimaterial Layers," *Engineering Fracture Mechanics*, Vol. 70, No. 15, pp. 2103-2114.
9. Klingbeil, N.W., 2003, "A Total Dissipated Energy Theory of Fatigue Crack Growth in Ductile Solids," *International Journal of Fatigue*, Vol. 25, No. 2, pp. 117-128.
10. Bontha, S. and Klingbeil, N.W., 2003, "Thermal Process Maps for Controlling Microstructure in Laser-Based Solid Freeform Fabrication," *Solid Freeform Fabrication Proceedings*, (D.L. Bourell, R. H. Crawford, J.J. Beaman, K.L. Wood, H.L. Marcus, eds.), Austin, August 2003.
11. Klingbeil, N.W. and Bontha, S., 2003, "Thermal Process Maps for Controlling Microstructure in Laser-Deposited Materials," HT2003-47503, *ASME Summer Heat Transfer Conference*, Las Vegas, NV, July 2003.
12. Beuth, J.L. and Klingbeil, N.W., 2003, "GOALI: Laser Additive Manufacturing of Aerospace Components," *Proceedings 2003 NSF Design, Service and Manufacturing Grantees and Research Conference*, Birmingham, Alabama, January 2003.
13. Klingbeil, N.W., Beuth, J.L., Chin, R. K. and Amon, C.H., 2002, "Residual Stress-Induced Warping in Direct Metal Solid Freeform Fabrication," *International Journal of Mechanical Sciences*, Vol. 44, No. 1, pp. 57-77.

14. Klingbeil, N.W., Brown, C.J., Bontha, S., Kobryn, P.A. and Fraser, H.L., 2002, "Prediction of Microstructure in Laser Deposition of Titanium Alloys," *Solid Freeform Fabrication Proceedings*, (D.L. Bourell, R. H. Crawford, J.J. Beaman, K.L. Wood, H.L. Marcus, eds.), Austin, August 2002, pp. 142-149.
15. Klingbeil, N.W. and Bontha, S., 2002, "The Behavior of Short Interface Edge-Cracks in Bonded Bimaterial Layers," AIAA-2002-1328, *Collection of Technical Papers - AIAA/ASME/ASCE/AHS/ASC Structures, Structural Dynamics and Materials Conference*, Denver, April 2002, Vol. 2, pp. 1008-1014.
16. Beuth, J.L. and Klingbeil, N.W., 2001, "The Role of Process Variables in Laser-Based Direct Metal Solid Freeform Fabrication," *JOM*, Vol. 53, No. 9, pp. 36-39.
17. Klingbeil, N.W. and Beuth, J.L., 2000, "On the Design of Debond-Resistant Bimaterials, Part I: Free-Edge Singularity Approach," *Engineering Fracture Mechanics*, Vol. 66, pp. 93-110.
18. Klingbeil, N.W. and Beuth, J.L., 2000, "On the Design of Debond-Resistant Bimaterials, Part II: A Comparison of Free-Edge and Interface Crack Approaches," *Engineering Fracture Mechanics*, Vol. 66, pp. 111-128.

Professional Memberships

1) American Society for Engineering Education (ASEE), 2002-Present. 2) ASM International, 2002-Present. 3) Sigma Xi, The Scientific Research Society, 1995-Present. 4) Tau Beta Pi, 1991-Present. 5) American Society of Mechanical Engineers (ASME), 1991-Present.

Honors and Awards (Since Joining WSU)

1) Robert J. Kegerreis Distinguished Professor of Teaching, Wright State University, 2005-2008. 2) WSU Nominee, U.S. Professors of the Year Program, Council for the Advancement and Support of Education, 2005. 3) ASEE North Central Section Nominee, ASEE National Outstanding Teaching Medal, American Society for Engineering Education, 2005. 4) Best Paper Award, ASEE North Central Section Conference, April, 2005. 5) ASEE North Central Section Outstanding Teacher Award, American Society for Engineering Education, 2004. 6) Excellence in Professional Service Award, College of Engineering and Computer Science, Wright State University, 2004. 7) Early Career Achievement Award, College of Engineering and Computer Science, Wright State University, 2003. 8) Nominated, ASEE North Central Section Outstanding Teacher Award, 2003. 9) Excellence in Teaching Award, College of Engineering and Computer Science, Wright State University, 2002. 10) Finalist, Excellence in Teaching Award, College of Engineering and Computer Science, Wright State University, 2001. 11) Finalist, Excellence in Teaching Award, College of Engineering and Computer Science, Wright State University, 2000.

Institutional and Professional Service (Last 5 years)

Department Committees: ABET Program Objectives Committee, Winter 04-Present, Petitions and Admissions Committee, Fall 03-Present; Honors and Awards Committee, Fall 03-Present; Design Committee, Fall 99-Present; Materials Search Committee, Winter 01-Spring 03; Mechanical Search Committee, Winter 01-Spring 02.

College Committees: Curriculum Committee (Chair), Fall 04-Present; Ph.D. Program Student Affairs Committee, Fall 04-Present; Ad-hoc Math Solutions Committee (Co-Chair), Winter 03-Present; Ad-hoc Teaching Committee, Fall 03-Present; Excellence in Teaching Awards Committee, Fall 02-Spring 03; Ad-hoc Engineering Math Committee (Chair), Winter 01-Fall 02; Academic Advantage Program Committee, Spring 2000-Present; Graduate Studies Committee, Fall 01-Present.

University Committees: Undergraduate Curriculum and Academic Policies Committee (UCAPC), Fall 04-Present; Center for Teaching and Learning Advisory Council (Fall 03-Present); Graduate Student Affairs Committee, Fall 01-Present (Chair, W02-Present); Parking Advisory & Appeals Committee, Fall 00-Spring 02.

Reviewer for Professional Journals: Composites Science and Technology; Engineering Fracture Mechanics; International Journal of Fatigue; Journal of Manufacturing Science and Engineering; Materials and Manufacturing Processes; Metallurgical and Materials Transactions; Shock and Vibration

Other Professional Service: Faculty Advisor, ASME WSU Student Section, Fall 2003-Present; Session Chair, ASME International Mechanical Engineering Congress & Exposition, Anaheim, CA, Nov. 2004; Session Chair, MMC2003 ASME Mechanics & Materials Conference, Scottsdale, AZ, June 2003; Session Chair, Dayton-Cincinnati Aerospace Science Symposium, March 2003, 2004, 2005; Instructor, Mathematics and Applied Problem Solving, Academic Advantage Program, College of Engineering and Computer Science, 2000-Present.

Professional Development Activities (Last 5 years)

Effective Teaching: A Workshop, Wright State University, February 2003; National Effective Teaching Institute, Montreal, Canada, June 2002 ; WSU Winter Quarter Faculty Workshop on Improving Student Learning, Winter 2002.