

PROMOTION RECOMMENDATION
University of Michigan-Dearborn
College of Engineering and Computer Science

Hong Tae Kang, associate professor of mechanical engineering, with tenure, College of Engineering and Computer Science, is recommended for promotion to professor of mechanical engineering, with tenure, College of Engineering and Computer Science.

Academic Degrees:

Ph.D.	1999	Engineering Mechanics, University of Alabama, Tuscaloosa, AL
M.S.	1997	Engineering Mechanics, University of Alabama, Tuscaloosa, AL
M.S.	1996	Mineral Engineering, University of Alabama, Tuscaloosa, AL
B. S.	1991	Earth Science Education, Seoul National University, Korea

Professional Record:

2009 – present	Associate Professor, Department of Mechanical Engineering, the University of Michigan-Dearborn, Dearborn, Michigan, USA.
2003 – 2008	Assistant Professor, Department of Mechanical Engineering, the University of Michigan-Dearborn, Dearborn, Michigan, USA.

Summary of Evaluation:

Teaching: Professor Kang's teaching is rated as excellent. Professor Kang is an effective teacher, as evidenced by the teaching evaluations from both his students and his peers. His average effectiveness from the student evaluation over the past years since his last promotion was about 4.34 out of 5.00. This places him within the top 15% among the Department of Mechanical Engineering faculty members.

Professor Kang came to the Department of Mechanical Engineering at the University of Michigan-Dearborn in 2003 and was promoted to the rank of associate professor, with tenure, in 2009. Since his last promotion, he has developed two new courses in the area of automotive systems (AENG 551 and AENG 650) and updated two existing ME graduate courses (ME 515 and ME 610), in addition to his regular teaching loads. He has supervised 12 senior design projects, 10 M.S. theses and three master's projects.

Research: Professor Kang's research is rated as excellent. His research focuses on the subject areas of materials fatigue, mechanical design and manufacturing processes, which are traditional disciplines in automotive engineering. He has 13 papers published or accepted for publication in refereed journals, since his last promotion. Additionally, he has published 11 conference papers. He is also a co-author of the book, Materials Fatigue Analysis Handbook, which was published in 2011 and there are two papers submitted under review. He has been very active in soliciting funds and writing research proposals. Since his last promotion in 2009, he has received, as the Pi or co-PI, 18 different internal and external research grants totaling over \$1,000,000. The external research grants have come from U.S. Automotive Materials Partnership, American Iron

and Steel Institute, GM and several other companies. He has graduated 10 M.S. students under his supervision, and also published research papers with these students in peer-reviewed journals.

Recent and Significant Publications:

- Kang, H., Wu, X., Khosrovaneh, A.K., and Li, Z., “Data Processing Procedure for Fatigue Life Prediction of Spot Welded Joints Using a Structural Stress Method,” STP1598, Fatigue and Fracture Test Planning, Test Data Acquisitions and Analysis, 2016. (Accepted).
- Wang, R., Kang, H., and Jiang, C., “Fatigue Life Prediction for Overlap Friction Stir Linear welds of Magnesium Alloys,” *ASME Journal of Manufacturing Science and Engineering*, Vol. 138, No. 6, pp. 061013–061013-7. doi: 10.1115/1.4032469, 2016.
- Kang, H., Li, Zhen, Khosrovaneh, A.K., Kang, B., and Li, Ziang, “Fatigue Life Predictions of Adhesive Joint of Sheet Steels,” *Procedia Engineering*, Vol. 133, pp. 518–527, 2015.
- Antar, B., and Kang, H. “Fatigue Life Prediction for Caliper Guide Pin Under Random Vibrational Loading,” *Advanced Materials Research*, Vol. 891–892, pp. 1755–1760, 2014.
- Mroueh, J., and Kang, H., “Measurement and Simulation of Random Vibro-Impact Responses at Brake Guide Pins,” *Advanced Materials Research*, Vol. 891–892, pp. 1749–1754, 2014.
- Lei, Z., Kang, H., Wang, J., Ren, L., and Liu, Y., "Finite Element Analysis for Mechanical Characteristics of Resistance Spot Welding Process with Three Sheets Assemblies," *Applied Mechanics and Materials*, Vol. 233, pp. 369–373. 2012.
- Kang, H., Khosrovaneh, A.K., Link, T., Bonnen, J.J., Amaya, M.A., and Shih, H.-C., “The Effect of Welding Dimensional Variability on the Fatigue Life of Gas Metal Arc Welded Joints,” *SAE International Journal of Materials and Manufacturing*, Vol. 4, No. 1, pp. 298–313, 2011.
- Li, B. and Kang, H., “Temperature Distribution during Friction Stir Spot Welding of Magnesium Alloys,” *Journal of Testing and Evaluation*, Vol. 39, No. 1, pp. 16–24, 2011.

Service: Professor Kang’s service is rated as excellent. He has served as the chair of ME graduate studies and helped to strengthen and maintain the health of the ME graduate program. He has also served on several departmental, college-level and university-level committees. He has served as a referee for several journals and conference proceedings and also chaired sessions in conferences. Professor Kang is an understanding faculty member of the Department of Mechanical Engineering and a good citizen of the University of Michigan-Dearborn.

External Reviewers:

Reviewer A: “The quality of his publication is superb and I would put him among the top five researchers in spot weld research in US. ... Overall, Professor Kang is well known in the area of fatigue of engineering materials and joints and is well respected by colleagues from academia and auto industry. I have no doubt that Professor Kang will continue bringing in credit to UM-D as time proceeds.”

Reviewer B: “Consider the several papers that I was sent, these are well written and of practical significance to automotive engineering. ... An indication of the quality is that Dr. Kang’s papers have received approximately 400 citations, with an H-Index of 13. These are respectable numbers and indicate that the papers are attracting some notice and are being read.”

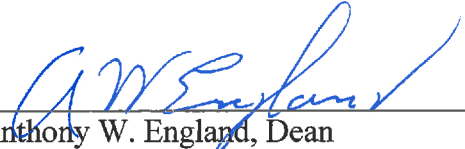
Reviewer C: "I am impressed with his research activities and accomplishments during his tenure at UM-Dearborn. He has supervised the research work of a relatively large number of graduate students, secured substantial external funds for his research program, and has published or has accepted for publication more than 50 refereed journal and conference papers."

Reviewer D: "Hong-Tae did an excellent job in delivering test results and FEA support to our project team. He has been a solid contributor for a number of follow-on and related light weighting projects with GM, Ford, Chrysler and other research partners. ... He has published some interesting papers on fatigue testing and modeling of multi-material joints, which are very useful to application engineers."

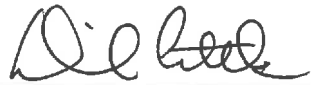
Reviewer E: "These papers address the important aspects of the current needs of research works in mechanical joints and welds and rolling processes. The research works are very important for engineering practice of the automotive industry."

Summary of Recommendation:

We are pleased to recommend, with strong support of the College of Engineering and Computer Science Executive Committee, Hong-Tae Kang for promotion to professor of mechanical engineering, with tenure, College of Engineering and Computer Science.



Anthony W. England, Dean
College of Engineering and Computer Science



Daniel Little, Chancellor
University of Michigan-Dearborn

May 2017