

Kwang J. (Jin) Kim, Ph.D., ASME Fellow

UNLV Distinguished Professor &
NV Energy Professor of Energy and Matter
Mechanical Engineering Department
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Primary areas of research interest: Active Materials/Sensors and Energy Systems

(A) Professional Experience:

Primary Appointments:

July 2012-Present *UNLV Distinguished Professor (2018-; NV Energy Professor (July 2016-); and Southwest Gas Professor (July 2012-) of Energy and Matter, Mechanical Engineering Dept., University of Nevada, Las Vegas (UNLV), NV*

July 2007-June 2012 *Chair & Professor, Mechanical Engineering Dept., University of Nevada, Reno (UNR), NV*

July 2011-June 2014 *UNR Foundation Professor, Mechanical Engineering Dept., UNR*

March 2007-June 2007 *Interim Chair, Mechanical Engineering Dept., University of Nevada, Reno, NV*

July 2002-June 2007 *Associate Professor, Mechanical Eng. Dept., University of Nevada, Reno, NV*

July 2001-June 2002 *Assistant Professor, Mechanical Eng. Dept., University of Nevada, Reno, NV*

July 1997-June 2001 *Chief Scientist, Environmental Robots, Inc., Albuquerque, NM*

May 1995-June 1997 *Research/Senior Research Engineer, Thermal Electric Devices, Inc., Albuquerque, NM*

March 1993-April 1995 *Postdoctoral Faculty Associate, Mech. Eng. Dept./Center for Environmental Energy Engineering, Univ. of Maryland, College Park, MD*

Sept. 1989-March 1993 *Research Associate, Mechanical Eng. Dept. & Center for Energy Systems Research, College of Engineering, Arizona State University, Tempe, AZ*

Secondary/Courtesy Appointments and Consulting:

Jan. 2014-April 2015 *Fellow, Collaborative Research and Education (CoRE), UNLV, NV*

Jan. 2014-Dec. 2015 *Visiting Professor, Department of Energy Science, Sungkyunkwan University, S. Korea*

Jan. 2013-Dec. 2015 *Adjunct Faculty, Mechanical Engineering Dept., Sungkyunkwan University, S. Korea*

July 2012-present *Adjunct Faculty, Mechanical Engineering Dept., University of Nevada, Reno, NV*

July 2011 *Visiting Professor, Dept. of Polymer Eng., Sungkyunkwan University, S. Korea*

Feb. 2011-June 2012 *Adjunct Faculty, Mechanical Eng. Dept., University of Nevada, Las Vegas, NV*

July 2009-July 2013 *Adjunct Faculty, Chemical/Materials Eng. Dept., University of Nevada, Reno, NV*

July 2009-June 2012 *Coordinator, Hydrogen Group, Renewable Energy Center, University of Nevada, Reno*

Aug. 2004-May 2006 *Graduate Faculty, Biomedical Engineering Progr., University of Nevada, Reno, NV*

Dec. 2001-August 2004 *Interim Director, Nevada Ventures Nanoscience Prog., University of Nevada, Reno*

July 1996-June 2001 *Adjunct Faculty, Department of Mechanical Engineering and Artificial Muscle Research Institute, The University of New Mexico, Albuquerque, NM*

Consulting for: NBD Nano Inc. (Boston), Environmental Robots Inc. (Albuquerque), Medipacs LLC (Tucson), HySorb Inc. (Albuquerque), EMD Technologies, LLC (Reno), Advanced Cooling Technologies Inc. (Lancaster)

(B) Professional Preparation/Training:

Post Doc., 1993-1995 *University of Maryland, College Park, MD (Mechanical Engineering/Center for Environmental Energy Engineering)*

Ph.D., 1992 *Arizona State University, Tempe, AZ (Chemical Engineering)*

M.S., 1989 *Arizona State University, Tempe, AZ (Chemical Engineering)*

B.E., 1987 Yonsei University, Seoul, S. Korea (Chemical Engineering)

(C) Graduate Advisors and Postdoctoral Mentor:

Ph.D. Advisors: Prof. Neil S. Berman (retired, Chemical Eng.) and
 Prof. Byard D. Wood (retired, Mechanical Eng.), Arizona State University, AZ
 PhD Dissertation: "Heat and Mass Transfer Enhancement in Absorption Cooling" (1992)

M.S. Advisor: Prof. Neil S. Berman (retired, Chemical Eng.), Arizona State University, AZ

PostDoc Mentor: Prof. Keith Herold (Mechanical Eng.), Univ. of Maryland-College Park, MD

(D) Publications: 380+ publications (~10,700 times Google Citations with *h*-index of 50 as of March 2018)
183 referred journal papers, 163 conference papers, 5 books/monographs (2 pending), 17 book chapters, 9 ed.
Volumes, 1 thermodynamic chart, and 7 US patents (4 pending); the complete information can be found from
<http://scholar.google.com/citations?user=VX3wtWEAAA&hl=en> and www.kwangjinkim.org/pubs.html

(E) Awards and Honors:

Fellow, 2017 National Academy of Inventors (NAI)
Recipient, 2016 Harry Reid Silver State Research Award, University of Nevada, Las Vegas
Recipient, 2016 Distinguished Barrick Scholar Award, University of Nevada, Las Vegas
Recipient, 2015 Nevada Regents' Researcher Award, Nevada System of Higher Education (NSHE)
Fellow, CoRE (Collaborative Research and Education), University of Nevada, Las Vegas (spring 2014-spring 215)
UNR Foundation Professorship, University of Nevada, Reno (elected in 2011)
Best Paper Award, Asia Pacific Forum on Renewable Energy (w/ S. Lee *et al.*, 2011)
Fellow, American Society of Mechanical Engineers (ASME) (elected in 2007)
The Lemelson Award for Innovation and Entrepreneur in Teaching and Research, College of Engineering, Univ. of Nevada, Reno (2006)
Yang-Song Poster Award, S2005 Korea Ceramic Society Conf. (w/ D.Y. Lee *et al.*, 2005)
Ralph E. Powe Junior Faculty Enhancement Award, Oak Ridge Associated Universities (2002)
Best Paper Award, ASME International, AES/HPD (w/ G. Lloyd *et al.*, 1997)

(F) Teaching Portfolios:

Undergraduate: Heat Transfer, Manufacturing Processes, Thermodynamics-I and II, Mechanical Eng. Lab.
Graduate: Advanced Thermodynamics, Refrigeration, Active Materials/Devices, Small Systems

(G) Research Support: Adequate research supports (approximately \$1M/year) from National Science Foundation (NSF), U.S. Department of Defense (DoD), Department of Energy (DoE), National Aeronautics and Space Administration (NASA), and Private industries

(H) Graduate Students and Research Advisees: 130+ advisees
Current research students and staff: 16 (2 postdocs and 6 PhD/3 MS/5 BS research students)

(I) Selected University Committee/Activities/Assignments:

Member, *FY 2017/2018 Top Tier subcommittee #2-3 of Research, Scholarship, and Creative Activity*; Chair, *FY 2016: Top Tier Subcommittee #2-3 of Research, Scholarship, and Creative Activity*, UNLV 2015-2016; Executive Committee Member (Chair of a subcommittee-*Research, Scholarship, and Creative Activity*), *Tier One Initiative Committee*, UNLV, 2014-2015; Member, *Search Committee of Vice President for Research and Economic Development*, UNLV, 2013-2014; Chair, *UNR Foundation Professorship Selection Committee*, 2012; Member, *Search Committee for Director of Sponsored Project Office*, UNR, 2011-2012; Member, *UNR Conflict of Interest Committee*, 2008-2012; Member, *Review Committee for UNR Tech Transfer Office*, 2008-2009; Member, *Research Practice Committee within the UNR Faculty Senate*, 2008; Interim Director, *Nevada Ventures Nanoscience Program of UNR*, 2001-2004; Member, *Search Committee*, Director of Sponsored Project Office, UNR, 2002; Member, *Energy and Environment Committee*, UNR, 2003-2005; Member and Technical Reviewer, *UNR Junior Faculty Research Award committee*, 2004-2005

(J) Selected Department/College Committees/Activities/Assignments:

Chair, *New Engineering Building Committee*, UNLV 2015-present, Executive Committee Member (Chair of a subcommittee-Scholarship), *Strategic Planning for Howard R. Hughes College of Engineering*, UNLV, 2015-2016; Member, *National Ranking Committee*, College of Engineering, UNLV, 2014-present; Chair, *ME By-Laws*

Committee, UNLV, 2013; Member, *Faculty Affairs Committee*, the Mechanical Engineering, UNLV, 2012-2015; Member, Faculty Affairs Committee, College of Engineering, UNLV, 2012-2015; Chair, *UNR College of Engineering's New Building Committee*, 2009; Member, *By-Laws Committee*, UNR College of Engineering, 2010-2011; Chair, *Graduate Program of the Mechanical Engineering Department/UNR*, 2002-2007

(K) State-Level Committees/Boards:

Member, *Nevada Southwest Energy Program Board*, 2003-2008

(L) Selected Professional Conference/Society Activities:

Technical and organizing committees:

The SPIE SMS Conference/Symposiums on Electroactive Polymer (also Multifunctional Materials and Sustainability);

Biomimetics, Artificial Muscles & Nano-Bio;

ASME: Smart Materials, Adaptive Structures and Intelligent Systems;

International Absorption Heat Pump Conference

Others: Int. Conf. on Solid State Hydrogen Storage; URAI; CIMTEC; Smart Materials and Nanotechnology

Tutorial/workshop organizer and instructor:

"3D manufacturing," University of Nevada, Las Vegas, January 2016 (with J. Moon)

"Soft robotics", University of Nevada, Las Vegas, January 2014

"Electroactive Polymers for Use in Robotics," IROS 2004, Sendai, Japan (with S. Tadokoro and W. Yim)

"Electroactive Polymers for Use in Robotics," IROS 2006, Beijing, China (with H.R. Choi and M. Yamakita)

(M) Editorships:

Associate Editor/Editorial Board Member for:

Smart Materials and Structures (2014IF=2.502);

Scientific Reports ([open access](#), 2014IF=5.578);

Frontiers in Robotics and AI/Soft Robotics ([open access](#), no IF yet);

Int. J. of Smart and Nano Materials ([open access](#), no IF yet);

International Journal of Advanced Robotic Systems/Biomimetic Robots ([open access](#), 2014 IF=0.526);

Actuators ([open access](#), no IF yet)

Special Issues (as a guest editor) for i) (w/ K. Leang) on "Ionic Polymer-Metal Composite," *Int. J. of Smart and Nano Materials* (2012/2013), *ii)* (w/ L. Isaacs) on "Molecular Biomimetics and Materials Design," *Int. J. of Molecular Sci. and Mater* (2010), *iii)* (w/ M. Shahinpoor) on "Biomimetic Actuators, Sensors and Devices," *JIMSS* (2007), *iv)* (w/ Y. Bar-Cohen, H.R. Choi, and J. Madden) on "Electroactive Polymers," *SMS* (2007)

(N) Proposal Review: a frequent reviewer for NSF, DoD, DoE, NASA, CA Energy Commission

(O) Journal Review (Frequent):

For energy systems: *Int. J. of Hydrogen Energy*; *AIAA: J. of Thermophysics and Heat Transfer*; *Int. Journal of Refrig.*; *Int. J. of Heat and Mass Transfer*, *ASME Journal of Heat Transfer*....

For active materials/sensors: *Sensors and Actuators: A. Physical and B. Chemical*; *Nature-Communication*, *J. of Intelligent Materials Systems and Structures (JIMMS)*; *Smart Materials and Structures (SMS)*; *Journal of Applied Physics (JAP)*; *Int. J. of Smart and Nano Materials*; *Applied Physics Letters (APL)*....

(P) Invited Talks: about 4-5 talks per year; Some of recent (since 2010) invited talks are:

(26) University of Nevada, Reno (November 2016, SAMPE invited talk); (25) University of Florida (September 2015, an invited speaker for the Mechanical Engineering Department); (24) MRS-Mexico (August 2015, a session invited speaker); (23) Kogas (March 2015, invited speaker for Shale Gas R&D); (22) KAIST (March 2015); (21) University of Houston (September 2014, an invited speaker for Distinguished Speaker Series, Mechanical Engineering Department); (20) University of Kentucky (June 2014, an invited speaker for Electronic Materials symposium; KY EPSCoR); (19) Artificial Muscle Lecture Series (Spain, November 2013; an invited lecturer); (18) KITECH/Green Tech (Incheon, November 2013, an invited speaker); (17) BAMMS 2013 (S. Korea, a planetary speaker); (16) Euro EAP (Swiss, June 2013, a planetary speaker); (15) POSTECH (Mechanical Engineering Department, May 2013, an invited speaker); (14) KEIT (Korea Evaluation Institute of Industrial Technology's K-tech Forum, May 2013, an invited speaker); (13) KAIST (May 2013, an invited speaker); (12) UNLV (March 2012, an invited speaker); (11) MRS 2011 Summer Meeting (Cancun, Mexico, August 2011, an invited speaker); (10) UKC 2011 (August 2011, an invited

speaker); (9) Utah State University, USTAR Energy Lecture (May 2011, an invited speaker); (8) University of Utah, Mechanical Engineering Department (May 2011, an invited seminar speaker); (7) KIER (Korea Institute of Energy Research, February 2011, an invited seminar speaker); (6) University of Nevada, Las Vegas (UNLV), Mech. Eng. (Feb 2011, an invited seminar speaker); (5) Iowa State University, Aerospace Eng. (September 2010, an invited seminar speaker); (4) SKK University (Korea, September 2010, an invited seminar speaker); (3) Air Force Workshop on Smart Materials (Japan, September 2010, an invited speaker); (2) Int. Conf. on Mechanical Properties of Materials (China, May 2010, an invited speaker); (1) Louisiana State University, Mechanical Eng. (February 2010, an invited seminar speaker)

(Q) Media Exposure and Others:

Back Cover – **Advanced Science** (2017; 10.1002/adv.201700410)

Front Cover – **Small**, 13 (2017: 10.1002/smll.201701314)

“UNLV-Led Team Awarded \$3.8 Million to Advance Artificial Muscle Research,” **UNLV Magazine** (Fall 2015)

“UNLV receives \$3.8 Million Grant to Study Artificial Muscles,” **Las Vegas Sun** (September 30, 2015)

“Energy Booster/Paths to Innovation,” **Innovation Magazine**, published by UNLV, pp. 15 (2014)

Front Cover - **Macromolecular Rapid Communications**, 34 (2013: 10.1002/marc.201200713)

“Animal-Inspired Robots Take a Dip” **Discovery News** (September 6, 2011)

“Device Mimics Human Muscle Size, Strength,” **Discovery News** (December 11, 2009)

“Hydrogen muscle silences the domestic robot” **NewScientist**, pp. 23 (October 17, 2009)

Front Cover – “Electroactive Polymer Actuators and Sensors Issue” – **MRS BULLETIN** (March 28, 2008)

(R) Technology Transfer/Licensing Agreements:

7 Patents (3 granted US patents; 4 in pending)

1 pending Invention Disclosure

Exclusive licensing agreement with NBD Nano Inc. on “FUNCTIONAL COATINGS ENHANCING CONDENSER PERFORMANCE,” Boston, MA (placed in December of 2013)

UNLV co-ownership/licensing agreement (w. Hyundai Motors Company) of an invention entitled “HEAT DISSIPATING PLATE DEVICE FOR LIGHT EMITTING DIODE, HEAD LAMP FOR AUTOMOBILE AND METHOD FOR PREPARING THE SAME” (2014)