

# CURRICULUM VITAE OF KEVIN P. HALLINAN

Professor and Chairperson  
*Department of Mechanical and Aerospace Engineering*  
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## EDUCATION

Ph.D. in Mechanical Engineering	The Johns Hopkins University	1988
M.S. in Mechanical Engineering	Purdue University	1985
B.S. in Mechanical Engineering	University of Akron	1992

## PROFESSIONAL EXPERIENCE

1999-present	University of Dayton Chair, Professor, Department of Mechanical and Aerospace Engineering	<i>Dayton, OH</i>
1994-1999	University of Dayton Associate Professor	<i>Dayton, OH</i>
1988-1994	University of Dayton Assistant Professor	<i>Dayton, OH</i>
1985/1988	The Johns Hopkins University Research Assistant	<i>Baltimore, MD</i>
1984/1985	American Gas Assn. Labs Engineer	<i>Cleveland, OH</i>

## AWARDS

- University of Dayton Alumni Award for Teaching, 1996. Awarded by the University of Dayton Alumni Awards Committee.
- Engineering Professor of the Year, 1994, 2003. Awarded by the Epsilon Delta Tau Engineering Fraternity.
- Mechanical Engineering Professor of the Year, 2002, Pi Tau Sigma.

## RECENT PUBLICATIONS (2001-PRESENT)

1. Shaikh, S., Lafdi, K., and Hallinan, K., "Carbon nano-additives to enhance latent energy storage of phase change materials," accepted for publication in J. of Carbon, June 2008.
2. McCarty, R., Hallinan K. P., Sanders, B., and Sophomone, T. "Enhancing Thermoelectric Energy Recovery Via Modulations of Source Temperature for Cyclical Heat Loadings," ASME J. of Heat Transfer, June 2007, Volume 129, Issue 6, pp. 749-755.
3. McCarty, R., Monaghan, D., Hallinan, K., and Sanders, B., 2007, "Experimental Verification of Source Temperature Modulation Via a Thermal Switch in Thermoelectric Energy Harvesting," Journal of Thermophysics and Heat Transfer, July 2007, vol. 21 no. 3, pp. 505-511.
4. Hallinan, K. P., Sanders, B, Somphone, T., Ephrem, G., 2005, "Entropy Generation Metric for Evaluating, Optimizing and Forecasting Aircraft Energy Management Systems," Int.l J. of Exergy, Vol. 2, No. 2, pp. 120-145.

5. Wee, S., Kihm, K., and Hallinan, K.P., 2005, "Effects of the Liquid Polarity and the Wall Slip on the Heat and Mass Transport Characteristics of the Evaporating Transition Film," *International J. of Heat and Mass Transfer*, V. 48, no. 2, pp. 265-278.
6. Rodriguez, F., Glawe, D. D., Naik, R. R., Hallinan, K. P., and Stoney, M. O., 2004, "A Study of the Chemical and Physical Influences upon In vitro Peptide-Mediated Silica Formation," *Biomacromolecules*, V. 5, pp. 261-265.
7. Yu, Z., Hallinan, K. P., Bhagat, W., and Kashani, A. R., 2002, "Electrohydrodynamically Augmented Micro Heat Pipes," *J. of Thermophysics and Heat Transfer*, V. 16, no. 2, pp.
8. "[Energy and waste reduction opportunities in industrial processes](#)," Kissock, K.; Hallinan, K.; Bader, W. *Strategic Planning for Energy and the Environment* v 21 n 1 2001, p.40-53
9. Hallinan, K. P., Daniels, M., and Safferman, S., 2001, "Balancing the Technical with Social and Ethical: A New First Year Interdisciplinary Design Course," *Technology and Society*, Vol. 20, No.1, pp. 4-14.
10. Kashani, R., Kang, S., and Hallinan, K. P., 2001, "Micro-scale Electro-hydrodynamic Pumped High-Performance Actuation," *Journal of Intelligent Material Systems and Structures*, Vol. 11, No. 5, pp. 343-350..
11. Yu, Z., Hallinan, K. P., Bhagat, W., and Kashani, A. R., 2001, "Electrohydrodynamically Augmented Micro Heat Pipes," *J. of Thermophysics and Heat Transfer*, Volume 15, No. 1, pp. 202-210.
12. Allen, J. S. and Hallinan, K. P., 2001, "A Study of the Fundamental Operation of a Capillary Driven Heat Transfer Device in Low Gravity, Part I: Liquid Slug Formation in Low Gravity," *Int. J. of Heat Transfer*, Vol. 44, pp 3931-3940.

#### **RECENT CONFERENCE PUBLICATIONS (2005-PRESENT)**

1. Eger, C., Kocoloski, M., McCarty, R., Kissock, K., Hallinan, K. P., "Industrial Solid-State Energy Harvesting: Potential, Mechanisms, and Examples," accepted for presentation at the ACEE Summer Study in Energy Efficiency in Industry, July 24-27, 2007, White Plains, New York.
2. McCarty, R., Monaghan, D., Hallinan, K., and Sanders, B., "Experimental Verification of Source Temperature Modulation Via a Thermal Switch in Thermoelectric Energy Harvesting," presented at ASME IMECE, November 5-10, 2006, Chicago, Illinois.
3. Ahlers, K., Hallinan, K., Sanders, B., and McCarty, R., "Design of a Multifunctional Aircraft Skin with Energy Harvesting Via Entropy Generation Minimization," submitted to ASME IMECE, November 5-10, 2006, Chicago, Illinois.
4. Sanders, B., McCarty, R., Ahlers, K., and Hallinan, K. P., "Structurally Integrated Thermal Energy Harvesting Subsystems," NATO RTO Specialist Meeting of Multifunctional Structures, October 2-6, 2006, Vilnius, Lithuania.
5. Hallinan, K.P. and Pinnell, M., 2005, "A Catholic and Marianist Engineering Education at the University of Dayton: Can There Be a Catholic Thermodynamics?" paper presented at conference on Role of Engineering at a Catholic University, Sept. 15-17, 2005, Dayton, OH.
6. McCarty, R., Hallinan, K.P., Sanders, B., and Somphone, T., 2005, "Enhancing Thermoelectric Energy Recovery Via Modulation of Source Temperature for Cyclical Heat Loadings, National Heat Transfer Conference, San Francisco, Ca.
7. George A. Mertz, Gregory S. Raffio, Kelly Kissock\*, Kevin P. Hallinan, "CONCEPTUAL DESIGN OF NET ZERO ENERGY CAMPUS RESIDENCE, International Solar Energy Conference, August 6-12, 2005, Orlando, Florida USA
8. Ahlers, K., McCarty, R., Hallinan, K., and Sanders, B., 2005, "Optimal Design of a Multifunctional Aircraft Skin with Energy Harvesting Via Entropy Generation Minimization," International Green Energy Conference, June 12-16, Waterloo, Canada.

### **PARTIAL FUNDING RECORD**

Dr. Hallinan has received over \$3.0 M in funding while at University of Dayton from external sources, all as PI, including NASA, AFOSR/DARPA, Wright-Laboratories, and IBM Corporation.

1. Air Force Office of Scientific Research, "Energy Harvesting on Aircraft," 5-03 to 4-07, \$250 K.
2. National Science Foundation, "An Electrohydrodynamically Pumped Micro Actuator." Co-I. with R. Kashani, 5-99 to present, \$210,000.
3. AFOSR/DARPA, "An Electrohydrodynamically Driven Micro Heat Pipe Array." PI. 7-15-96 - 7-14-99, \$250,000.
4. NASA Microgravity Sciences. Grant No. UGS96-0038. PI. "A Study of the Microscale Fluid Physics in the Near Contact Line of an Evaporating Meniscus," 3-31-96 to 2-28-98, \$273,000.
5. NASA Microgravity Sciences Grant No. NGT-51089. PI. "The Effect of Low Frequency Vibrations on the Transition Region of a Capillary Meniscus." 7-1-93 to 6-30-94, \$64,250.
6. NASA Microgravity Sciences. Grant No. NAG3-1391. PI. "Evaporation from a Capillary Meniscus in Microgravity." 11-1-92 to 10-31-95, \$540,000.

### **TEACHING**

Dr. Hallinan has focused his teaching in the Energy area, offering classes in Heat Transfer, Fluid Mechanics, Thermodynamics, and Experimentation. He developed and taught new classes in Design for the Environment, Energy Harvesting, Microscale Heat Transfer, Perturbation Methods, Phase Change Heat Transfer and Interfacial Phenomena, and Multi-Phase and Porous Media Flows. He also has developed a new course in Mechatronics, which integrates knowledge of mechanical systems, controls, electronics, and microprocessor control.

Since Winter 2007, he has teamed with History, English, and Physics faculty to team teach an interdisciplinary course (ASI 320) entitled Cities and Energy.

### **ADMINISTRATION**

Dr. Hallinan has served as Department Chair of the Department of Mechanical and Aerospace Engineering since 1999. During this time, undergraduate enrollment has increased from 256 to now over 410. Graduate enrollment has increased from just over 50 to now over 120. Highlights of his administration include the formation of an Industrial Advisory Committee, the establishment of a new Energy Systems Concentration in 2007, and successful leadership through the ABET accreditation process in 2004.