

Curriculum Vitae Dr. Hyunjae Park

OFFICE

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HOME

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EDUCATION

PhD (Dec. 1992)	Mechanical Engineering	University of California at Los Angeles, LA, CA
MS (Feb. 1983)	Mechanical Engineering	Yonsei University, Seoul, Korea
BS (Feb. 1981)	Mechanical Engineering	Han-Yang University, Seoul, Korea

EXPERIENCE

Research Professor and Freshman Course Program Coordinator (Aug 2010 ~ Present)
Department of Mechanical Engineering, Marquette University, Milwaukee, Wisconsin

Research Professor and Director (Aug 2010 ~ Jul 2014)
Thermofluid Science and Energy Research Center (TSERC), Department of Mechanical Engineering,
Marquette University, Milwaukee, Wisconsin

Research Associate Professor and Director (Aug 2001 ~ Jul 2010)
Thermofluid Science and Energy Research Center (TSERC), Department of Mechanical Engineering,
Marquette University, Milwaukee, Wisconsin

Research Assistant Professor and Project Manager (Jan 1996 ~ Jul 2001)
Center for Energy Studies (CES), Department of Mechanical Engineering, Marquette University,
Milwaukee, Wisconsin

Post-Doctoral Research Associate (Dec. 1992 ~ Dec. 1995)
Department of Mechanical Engineering, Marquette University, Milwaukee, Wisconsin

PROFESSIONAL INTERESTS

Modeling of thermal fluid phenomena occurring in energy conversion components and systems – advanced analysis utilizing the fundamentals of thermodynamics, fluid dynamics and heat transfer, and development/refinement of current/emerging technologies through multidisciplinary research

Industrial applications of integrated thermal-fluid fundamentals to real/practical industry engineering problems

Research area includes

- Various heat exchanging energy conversion equipment performance modeling (design and analysis),
- Computational fluid dynamics (CFD) applications to energy conversion components and systems,
- Optimization of energy conversion equipment and systems, and
- Interdisciplinary fluid flow and heat transfer problem analysis.

RESEARCH & ACADEMIC ACTIVITIES

PI (and Co-PI) for a number of research projects sponsored by numerous industries in the fields of heat exchanger component analysis and design, energy system analysis and design, etc.

Development of special industry research project programs:

- a. Thermal fluid engineering research/design project program – Application/integration of engineering fundamentals and knowledge to real/practical engineering problems Development of solution algorithm, programs and analysis software tools CFD modeling of thermal fluid phenomena of practical industry problems using a CFD package (Fluent)
- b. On-site/on-campus technical short courses/seminar – CFD seminar course and tailored technical short courses/seminar for industrial applications of thermal fluid fundamentals
- c. Industry repository R&D service program – Technical consultation for issues related to thermal fluid and energy areas of the products Access to TSERC research facilities (CFD software, developed engineering analysis program/software and technical literatures/references) Technical innovation team for developing state-of-the-art product technologies and their applications

Teaching

- [26] **Park, H.**, Bowman, A., Dake, T., Kicinski, K. and Jaeger, D., “Investigation of Thermal Performance Characteristics of a Motorcycle Exhaust-Pipe System,” 9th Joint AIAA/ASME Thermophysics and Heat Transfer Conferences, AIAA-2006-2924 (2006).
- [27] Shin, K., **Park, H.** and Kim, K., “Evaluation of Automobile Passenger Thermal Comfort Response Due to Seat Cooled by Forced Convection Heat Transfer Mode,” 9th Joint AIAA/ASME Thermophysics and Heat Transfer Conferences, AIAA-2006-2923 (2006).
- [28] **Park, H.** and Bowman, A., “Governing Equations Used in Coiled Tube Systems, Part I: Development of Standard/General Forms,” 9th Joint AIAA/ASME Thermophysics and Heat Transfer Conferences, AIAA-2006-3617 (2006).
- [29] **Park, H.** and Bowman, A., “Governing Equations Used in Coiled Tube Systems, Part II: Order-of-Magnitude Analysis of Spiral Coil System,” 9th Joint AIAA/ASME Thermophysics and Heat Transfer Conferences, AIAA-2006-3616 (2006).
- [30] Bowman, A. and **Park, H.**, “Investigation and Development of Proposed General Pressure Drop and Heat Transfer Correlations for Laminar Flow in a Toroidal Coiled Tube System,” ASME IMECE 2004-59872 (2004).
- [31] Bowman, A. and **Park, H.**, “CFD Study on Laminar Flow Pressure Drop and Heat Transfer Characteristics in Toroidal and Spiral Coil Systems,” ASME IMECE 2004-59879 (2004).
- [32] **Park, H.** and Bowman, A., “Development of Plate-type Heat Exchanger for Exhaust Gas Heat Recovery,” ASME IMECE 2003-42671 (2003).
- [33] Bowman, A. and **Park, H.**, “Development of Generalized Correlations for the Pressure Drop and Heat Transfer Applied in Helically Coiled Tube System,” ASME IMECE 2003-42672 (2003).
- [34] Bowman A., **Park, H.**, Hayes, B., Rinehart, M., Raether S. and Farrell M., “Investigation and Development of Condensation Heat Transfer for Straight and Helically Coiled Tubes,” ASME IMECE 2002-32900 (2002).
- [35] **Park, H.**, Bowman A., Stansfield, T., Huibregtse, B and Wilkinson, S., “Effect of Boiler Feedwater Inlet Locations on the Water Circulation Characteristics in a Firetube Boiler with the Non-Symmetrically Arranged Tube Passes 3 and 4,” ASME IMECE 2002-33043 (2002).
- [36] **Park, H.**, Nigro, N., Gollhardt N. and Lee, P., “Development and Integration of a Semi-Analytical PCB Thermal Design Technique with an Infrared Thermal Imaging System,” ASME IMECE 2001/AES-23600 (2001).
- [37] **Park, H.**, Bowman, A., Stansfield, T., Huibregtse, B., Wilkinson S. and Ayala, W., “Prediction of Water Circulation

- [13] Paulus, D. (PhD, 2000), “*Second Law Analysis in Modeling, Design and Optimization.*”
- [14] Moody, S. (MS, 1997), “*Analysis and Optimization of Solid Oxide Fuel Cell Cogeneration Systems.*”
- [15] Paulus, D. (MS, 1995), “*Personal Computer Simulation of Energy Systems.*”

(Supervising BS Senior Design Projects)

- [1] “*Designing & Developing Oil Spill Clean-Up Device,*” by Zach S, Vadym S, Miguel M, Lance V, Steven S. (2021-2022).
- [2] “*Designing Briggs and Stratton Pressure Washer High Pressure Chemical Injection System,*” by Evan B, Andrew F, Zachary M, Ian M, Mackenzie N. (2018-2019).
- [3] “*Developing (Designing & Testing) Scroll-Type Air Expander (Mini Turbine),*” by Hughes, M., Younger, G., Burke, T., Stemper, D., Tripi, A. (2017-2018).
- [4] “*Engine Intake Airflow Swirl/Tuning Actuator,*” by Maloney, R., Deutschmann, Z., Mikkelsen, M., Talkington, T.J., (2016-2017).
- [5] “*SAE Aero West Micro-Class Competition,*” by Blankenheim, D., Meus, S., Neville, A., Wilke, A., (2010-2011).
- [6] “*Bio-Fuel Stove Development,*” by Condon, M., Hartwig, M., Hanrahn, M., Bridges, T., (2009-2010).
- [7] “*Low Cost Multi-Fuel Stove for Developing Countries,*” by Weber, A., Doyle, M., Falendysz, N., Popowski, S., Nahn, R., Nelson, K., (2008-2009).
- [8] “*SAE Aero Design (Airlift Wing),*” by Fitzpatrick, J., Lane, M., Reiser, K., Wojno, D., Meindl, W., Shafer, J., (2007-2008).
- [9] “*SLALOM Water Ski Improvement Project,*” by Kennedy, J., Novak, T., Schroeder, K., (2007-2008).

ACTIVITIES

(Professional)

- Member, the American Society of Mechanical Engineers (ASME) (Oct. 1994 ~ Present)
- Guest Editor & Reviewer, Journal of Pressure Vessel Technology (JPVT) (Mar. 2006 ~ May 2013)
- Reviewer, International Journal of Heat Exchangers (IJHE) (Jan. 2005 ~ Present)
- Reviewer, Journal of Electronic Packaging (JEP) (Jan. 2003 ~ Present)

(Cultural)

- Director of Board, the Korean American Association of Milwaukee (Jan. 2017 ~ Dec. 2018)
- Board Member, the Korean American Association of Milwaukee (Jan. 1996 ~ Present)
- Vice President, the Korean American Association of Milwaukee (Jan. 2001 ~ Dec. 2004)