

James C. Hermanson

William E. Boeing Department of Aeronautics & Astronautics
Abbreviated Curriculum Vitae

Education

University of Washington, Seattle, WA: B.S., Aeronautics and Astronautics	1977
California Institute of Technology, Pasadena, CA: M.S., Aeronautics	1980
California Institute of Technology, Pasadena, CA: Ph.D., Aeronautics	1985
Universität Göttingen, Göttingen, Germany: Postdoctoral Research Fellow	1985

Professional Experience

University of Washington, Seattle, WA Associate Professor (2002-2008), Professor (2008-), Associate Chair (2009-2010), Chair (2010-2014)	8/02-present
Worcester Polytechnic Institute, Worcester MA Assistant Professor (1995-1997), Associate Professor (1997-2002), Professor (2002)	3/95-7/02
Universität Bremen, Bremen, Germany Visiting (Fulbright) Professor, ZARM (Center of Applied Space Technology and Microgravity)	8/16-present
Kungliga Tekniska Högskolan, Stockholm, Sweden Visiting Professor, Department of Mechanics	1/15-8/15
Stanford University, Palo Alto, CA Visiting Professor, Department of Aeronautics and Astronautics	10/14-11/14
University of Connecticut Department of Mechanical Engineering, Storrs, CT Visiting Associate Professor	1/93-6/93
United Technologies Research Center, East Hartford, CT Research Scientist	7/88-3/95
University of Washington Applied Physics Laboratory, Seattle, WA Senior Engineer/Research Assistant Professor	2/86-7/88
Boeing Aerospace Company, Seattle, WA Engineer	7/77-7/79

Selected Honors and Awards

- A&A Undergraduate Educator of the Year, 2018.
- UW Distinguished Teaching Award Nominee, 2013, 2017.
- Best Paper Award, *18th Microgravity Science and Space Processing Symposium*
(part of 42nd AIAA Aerospace Sciences Meeting), January 2004.
- Boeing Chair Professor in Aeronautics & Astronautics, UW, 2002.
- ASME 2001 Curriculum Innovation Award - Honorable Mention, 2001.
- Russel M. Searle Instructorship in Mechanical Engineering, 2001.

Current Research Interests

Fluid mechanics (multi-phase flow, compressible flow, heat transfer), propulsion, combustion (flame structure, droplet evaporation/combustion, alternative-fuels combustion), cryogenic propellants.

Selected Publications (post-2012)

Journal Articles:

- Bellur, K., Medici, E.F., Hermanson, J.C., Choi C.K., and Allen, J.S., “Determining solid-fluid interface temperature distribution during phase change of cryogenic propellants using transient thermal modeling,” *Cryogenics* **91**, 103-111, 2018.
- Liao, Y.-H. and Hermanson, J.C., “OH-PLIF Imaging of the Reaction Zone in Swirled, Strongly-Pulsed Jet Diffusion Flames with a Low Reynolds Number,” *Combustion Science and Technology* **190** (4), 615-631, 2018.
- Kimball, J.T., Hermanson, J.C. and Allen, J.S., “Convective Structure Evolution and Heat Transfer in Transient Evaporating Films,” *AIAA Journal of Thermophysics and Heat Transfer*, **78**, 125105, 2017.
- Albernaz, D.L., Do-Quang, M., Hermanson, J.C. and Amberg, G., “Droplet deformation and heat transfer in isotropic turbulence,” *Journal of Fluid Mechanics*, **820**, 61-85. 2017.
- Albernaz, D.L., Do-Quang, M., Hermanson, J.C. and Amberg, G. “Real fluids near the critical point in isotropic turbulence,” *Physics of Fluids* **28** (12), 125105, 2016.
- Konduru, V., Bellur, K., Médici, E.F., Allen, J.S., Choi, C.K., Hussey, D.S., Jacobson, D.L., Leão, J., McQuillen, Hermanson, J.C., and Tamlarasan, A., “Examining Liquid Hydrogen Wettability using Neutron Imaging”, *Journal of Heat Transfer*, **138**(8), 2016.
- Lin, E.P., Kim, Y.-J., and Hermanson, J.C., “The Structure of Compression Waves on Supersonic Droplets,” *AIAA Journal* **54**(2), 777-781, 2016.
- Bellur, K., Medici, E.F., Kulshreshta, M., Konduru, V., Tamlarasan, A., McQuillen, J., Leão, J.B., Hussey, D.S., Scherschlight, J., Hermanson, J.C., Choi, K.-C., and Allen, J.S., “A new experiment for investigating evaporation and condensation cryogenic propellants,” *Cryogenics* **74**, 131-137, 2016.
- Bellur, K., Konduru, V., Kulshreshta, M., Tyrewala, D., Medici, E.F., Allen, J.S., Choi, K.-C., Hussey, D.S., Jacobson, D.L., Leão, J., McQuillen, J., Hermanson, J.C. and Tamlarasan, A., “Contact Angle Measurement of Liquid Hydrogen (LH2) in Stainless Steel and Aluminum Cells”, *Journal of Heat Transfer*, **138**(2), 2016.
- Bellur, K., Medici, E.F., Allen, J.S., Choi, K.-C., Hermanson, J.C., Tamlarasan, A., Hussey, D.S., Jacobson, D.L., Leão, J., and McQuillen, J., “Neutron Radiography of Condensation and Evaporation of Hydrogen in a Cryogenic Condition”, *Journal of Heat Transfer*, **137**(8), 2015.
- Narendranath, A.D., Hermanson, J.C., Kolkka, R.W., Struthers, A.A. and Allen, J.S., “The Effect of Gravity on the Stability of an Evaporating Liquid Film,” *Microgravity Science and Technology* **26** (3), 189-199, 2014.
- Liao, Y.-H. and Hermanson, J.C., “The CO/NO_x Emissions of Swirled, Strongly-Pulsed Jet Diffusion Flames,” *Combustion Science and Technology* **186**, 849-868, 2014.
- Liao, Y.-H. and Hermanson, J.C., “Turbulent Structure and Dynamics of Swirled, Strongly Pulsed Jet Diffusion Flames,” *Combustion Science and Technology*, **185**, 1602-1623, 2013.

Conference Papers and Proceedings:

- Gonzalez, J.C., Allen, J.S., and Hermanson, J.C., “Evolution of Convective Structure and Heat Transfer of Evaporating Films under Cyclic Conditions” AIAA paper 2018-1546, *56th Aerospace Sciences Meeting/SciTech 2018*, Kissimmee, FL, January 2018.

- Bellur, K., Medici, E.F., Hermanson, J.C., Hussey, D.S., Choi, K.-C. and Allen, J.S., “Determining solid-fluid interface temperature distribution during phase change of cryogenic propellants using transient thermal modeling”, 33rd Annual Meeting American Society for Gravitational and Space Research, Renton, WA, October 2017.
- Choi, K.-C., Bellur, K., Hussey, D.S., Jacobson, D.L., Lamana, J., Medici, E.F., Hermanson, J.C. and Allen, J.S., “Neutron attenuation analysis of cryogenic propellants”, *ASME Summer Heat Transfer Conference*, Bellevue, WA, July 2017.
- Bellur, K., Medici, E.F., Hermanson, J.C., Choi, K.-C. and Allen, J.S., “Determining solid-fluid interface temperature distribution during phase change of cryogenic propellants using transient thermal modeling”, 27th Space Cryogenics Workshop, July 2017.
- Vijlee, S.Z., Hermanson, J.C., Kramlich, J.C. and Malte, P.C., “Effects of Fuel Composition on NO_x Emissions for Traditional and Alternative Jet Fuels” *Western States Section of the Combustion Institute 2016 Spring Technical Meeting*, Seattle, WA, March 2016.
- Lin, E.P. and Hermanson, J.C., “Compression Wave Structure on Droplets under Supersonic Conditions,” AIAA Paper 2014-3946, *AIAA Propulsion and Energy Forum 2014*, Cleveland, OH, July 2014.

Grants & Contracts

PI since 1985 on numerous grants and contracts from NASA, the National Science Foundation, the Office of Naval Research, the State of Washington, the US Fulbright Program, the National Center for Microgravity Research, the Deutscher Akademischer Austauschdienst (German Academic Exchange Service), and private industry and foundations.

Professional memberships

American Institute of Aeronautics and Astronautics (Associate Fellow)
 American Society of Mechanical Engineers (Fellow)
 The Combustion Institute
 American Physical Society (Division of Fluid Dynamics)

Selected Professional Service

Associate Editor, *AIAA Journal*
 AIAA High-speed Air-breathing Propulsion Technical Committee
 AIAA Air-breathing Propulsion Technical Committee
 Council Member, AIAA Pacific Northwest Section
 Combustion Institute Western States Section Executive Committee
 Guest Editor, *Physics of Fluids*
 Local Arrangements Chair, Western States Section of the Combustion Institute 2016 Technical Meeting.