John C. Crepeau

Work: Dept. of Mechanical Engineering, PO Box 440902, University of Idaho, Moscow, ID 83844-0902Tel (208)885-5228, Fax (208)885-9031
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EDUCATION:

University of Utah, Salt Lake City, Utah.
Doctor of Philosophy, Mechanical Engineering, June 1991.
Dissertation: "Spectral Entropy Behavior in Transitional Flows." Adviser: L.K. Isaacson

Santa Fe Institute, Santa Fe, New Mexico.
Complex Systems Summer School, June 1990.
Project: Nonlinear Dynamics of Boundary Layer Transition.

International Space University, Strasbourg, France.
Department of Space Policy and Law, August 1989.
Project: Variable Gravity Research Facility.

University of Utah, Salt Lake City, Utah.
Master of Science, Mechanical Engineering, December 1988.
Thesis: "A Deterministic Approach to Shear Flow Transition." Adviser: L.K. Isaacson

University of California, Berkeley, California.
Bachelor of Science, Mechanical Engineering, June 1983.

EXPERIENCE:

University of Idaho, Department of Mechanical Engineering, Idaho Falls, Idaho
Chairman: February 2009-June 2015; Professor: July 2007 – present; Associate Professor: July 2000 – June 2007; Assistant Professor, August 1994 – June 2000:
Administrative responsibilities:

- Uphold department standards and maintain academic integrity
- Manage departmental affairs including course scheduling, faculty evaluation and budgeting
- Mentor new faculty towards tenure
- Advise and counsel undergraduate and graduate students
- Lead ABET accreditation process and write self-study
- Serve in college leadership activities
- Participate in development functions
- Assist in K-12 STEM activities

Academic responsibilities: Teach undergraduate and graduate courses in the general area of thermal-fluid science. Perform research in the areas of flow visualization, treatment of spent nuclear fuels, transition to turbulence in fluid mechanics, and solidification of fluids with internal heat generation.

Courses taught:	Engr 320, *Fluid Mechanics*	ME 345, *Heat Transfer*
	ME 546, *Convection Heat Transfer*	ME 527, *Thermodynamics*
	ME 520, *Fluid Dynamics*	ME 557, *Advanced Fluid Dynamics*
	ME 541, *Mech. Eng. Analysis*	ME 504, *Nuclear Heat Transport*

	ME 412, *Gas Dynamics*	EM 584, *Writing Winning Proposals*
	ME 526, *Statistical Thermodynamics*	ME 443, *Propulsion Systems*
	ME 504, *Turbulence*	ME 123, *Intro to Mechanical Design*

Escuela Superior Politecnica del Litoral (ESPOL), Guayaquil, Ecuador, September 2015-April 2016. U.S. Fulbright Scholar: Taught Introduction to Turbulent Flow, performed research in engineered fluids, and assisted the program in their student outcome assessment and reaccreditation efforts.

Andrulis Research Corp., Salt Lake City, Utah. March 1988-July 1992; September 1993-July 1994
Engineer: Devised test plans and analyzed system performance for ion spectroscopy and laser detection devices. Wrote impact and equipment assessments related to the Chemical Weapons and Biological Weapons Treaties.

Humboldt University, Berlin, Germany. July 1992-June 1993
NSF-NATO Postdoctoral Fellow: Studied the transition to turbulence. Employed analytical techniques of non-equilibrium thermodynamics to model coherent structures.

University of Utah, Salt Lake City, Utah. July 1991-June 1992
Visiting Assistant Professor:

Courses taught:	ME 660, *Advanced Thermodynamics*	ME 350, *Fluid Mechanics*

University of Utah, Salt Lake City, Utah. December 1988-June 1991
Instructor:

Courses taught:	ME 364, *Heat Transfer*	ME 369, *Heat Transfer Laboratory*
	ME 350, *Fluid Mechanics*	ME 557, *Expr. Fluid Mechanics*

Hydroflame Corp., Salt Lake City, Utah. June 1988-September 1988
Engineering Consultant: Designed and built a production prototype of an instantaneous hot water heater for recreational vehicle applications.

Hercules Aerospace Corp., Magna, Utah. June 1987-September 1987
Engineer: Analyzed data from the II-III stage separation tests for the Midgetman missile system.

Litton Guidance and Control, Woodland Hills, California. July 1983-July 1984
Engineer: Analyzed failures of the 28cm Ring Laser Gyroscope, and implemented corrective actions into the production procedure. Sustaining Engineer in charge of production of Ring Laser Gyroscopes.

REFEREED JOURNAL PUBLICATIONS:
McCord, D., J. Crepeau, A. Siahpush, and J.A.F.Brogin, "Analytical Solutions to the Stefan Problem with Internal Heat Generation," *Applied Thermal Engineering*, 103(2016) 443-451

Skifton, R., R. Budwig, J.Crepeau, T. Xing, "Entropy Generation for Bypass Transitional Boundary Layers," accepted for publication, *ASME Journal of Fluids Engineering*.

Siahpush, A., J. O'Brien, J. Crepeau, P. Sabharwal, "Melting and Solidification Results of a Solid/Liquid Phase Change Thermal Energy Storage System," submitted to *Heat Transfer Engineering*.

Davis, K.L., D.L. Knudson, J.L. Remper, J.C.Crepeau, S. Solstad, Laboratory Evaluation of Future Elongation and Diameter Measurements at the Advanced Test Reactor, *ANS Nuclear Technology*, Vol. 191, dx.doi.org/10.13182/NT14-60 July 2015.

George, J., L.D. Owen, T. Xing, D.M.McEligot, J.C.Crepeau, R.Budwig, K. Nolan, Entropy generation in bypass transitional boundary layer flows, *J. Hydrodynamics*, 26(2014), pp.669-680.

Shrivastava, A., A. Siahpush, B. Williams, J. Crepeau, Numerical and Experimental Investigation of Melting with Internal Heat Generation within Cylindrical Enclosures, *Applied Thermal Engineering*, 67(2014) pp. 587-596.

Ghasemi, E., D.M. McEligot, K.P. Nolan, J. Crepeau, A. Siahpush, R. Budwig, A. Tokuhiro, Effects of adverse and favorable pressure gradients on entropy generation in a transitional boundary layer region under the influence of freestream turbulence, *Int. J. Heat and Mass Transfer*, 77(2014), pp.475-488.

Griffard, C., S. Penoncello, J. Crepeau, The Thermophysical Properties of Binary Mixtures of Molten Alkali Fluoride Salts, Part II: Correlations for the Transport Properties in Reduced Form, *Progress in Nuclear Energy*, 70(2014), pp. 119-127.

Griffard, C., S. Penoncello, J. Crepeau, The Thermophysical Properties of Binary Mixtures of Molten Alkali Fluoride Salts, Part I: Prediction of Thermodynamic Properties through Use of the Soft Sphere Equation of State, *Progress in Nuclear Energy*, 68(2013), pp. 130-141.

Griffard, C., S. Penoncello, J. Crepeau, Use of the Soft Sphere Equation of State to Predict the Thermodynamic Properties of the Molten Salt Mixtures LiF-BeF2, NaF-BeF2, Kf-BeF2, *Progress in Nuclear Energy*, 68(2013), pp. 188-199.

Ghasemi, E., D. McEligot, K. Nolan, J. Crepeau, A. Tokuhiro, R. Budwig, "Entropy Generation in a Transitional Boundary Layer Region Under the Influence of Freestream Turbulence with Streamwise Pressure Gradient Using Transitional RANS Models and DNS," *International Communications in Heat and Mass Transfer*, 41 (2013), pp. 10-16.

Crepeau, J. "The Eponymous Anonymous Josef Stefan," *Comptes Rendue Mécanique*, Volume 340, pp. 468-470, 2012.

Crepeau, J. and Siahpush, A. "Solid-Liquid Phase Change Driven by Internal Heat Generation," *Comptes Rendue Mécanique*, Volume 340, pp. 471-476, 2012.

Ferdows, M., Bangalee, M.Z.I., Crepeau, J., Seddeek, M.A., The effect of variable viscosity in double diffusion problem of MHD from a porous boundary with Internal Heat Generation, *Progress in Computational Fluid Dynamics*, Vol. 11, No. 1(2011), pp. 54 - 65

Crepeau, J., Siahpush, A., Spotten, B., On the Stefan Problem with Volumetric Energy Generation, *Heat and Mass Transfer*, Vol. 46, (2009) pp. 119-128.

Crepeau, John, Loschmidt, Stefan and Stigler's Law of Eponymy, *Physics in Perspective*, Vol.11, No. 4, (2009), pp. 357-378.

Rempe, J., D. Knudson, K. Condie, S.C. Wilkins, J. Crepeau, J. Daw, P. Green, Options Extending the Applicability of High Temperature Irradiation Resistant Thermocouples, Proc. NURETH-12, Sept 30 – Oct. 4, 2007, Pittsburgh, PA. Also appeared in *Nuclear Technology*, Vol. 161, No.1, (2009), pp. 169-177.

Siahpush, A., J. O'Brien and J. Crepeau, Phase Change Heat Transfer Enhancement Using Copper Porous Foam, *Journal of Heat Transfer*, Vol. 130, August 2008, (82301), 11 pages.

Daw, J.E., J.L. Rempe, D.L. Knudson, J.C.Crepeau, Thermal expansion coefficient of steels used in LWR vessels, *Journal of Nuclear Materials*, Vol. 376, No. 2, May 2008, pp. 211-215.

Daw, J.E., J.L. Rempe, D.L. Knudson, S.C. Wilkins, J.C. Crepeau, Extension wire for high temperature irradiation resistant thermocouples, *Measurement Science and Technology*, Vol. 19, No. 4, April 2008, (045206), 7 pages.

Ferdows, M., K. Kaino and J.C.Crepeau, "Thermal radiation effects on natural convection flow past a semi-infinite porous plate in a porous media with internal heat generation," *International Journal of Applied Mechanics and Engineering*, Vol. 13, No. 1 (2008) 277-280.

Ferdows, M., K. Kaino and J.C.Crepeau, "MHD free convection and mass transfer flow in a porous media with simultaneous rotating fluid," *International Journal of Dynamics of Fluids*, Vol. 4, No.1, (2008) pp. 69-82.

Crepeau, J., and A. Siahpush, Approximate Solutions to the Stefan Problem with Internal Heat Generation, *Heat and Mass Transfer*, Vol. 44, No.7 (2008), pp. 787-794.

Daw, J., J. Crepeau, J. Rempe, D. Knudson, K. Condie, S.C.Wilkins, Initial Results from Investigations to Enhance the Performance of High Temperature Irradiation-Resistant Thermocouples, Proc. 15th International Conference on Nuclear Engineering, Paper #10842, 22-26 April 2007, Nagoya, Japan. Revised version appears in the *Journal of Power and Energy Systems*, Vol. 2, No. 2, (2008) Japan Society of Mechanical Engineers, pp. 854-863.

Ferdows, M., K. Kaino and J. Crepeau, "Natural convection flow past vertical porous plate with internal heat generation and constant heat flux," *JP Journal of Heat and Mass Transfer*, Vol. 1, Issue 3, 2007, pp. 297-301.

Ferdows, M., K. Kaino and J. Crepeau, "Natural Convection of a magnetohydrodynamic flow past a semi-infinite vertical porous plate in a porous medium with internal heat generation, *International Journal of Heat Technology*, Vol. 25, No. 1 (2007) pp. 91-94.

Ferdows, M., K. Kaino and J. Crepeau, Natural Convection of a Magnetohydrodynamic Flow

Past a Semi-Infinite Vertical Porous Plate in a Porous Medium," *JP Journal of Heat and Mass Transfer*, Vol. 1, Issue 1, 2007, pp. 15-25.

Crepeau, J., "Josef Stefan: His Life and Legacy in the Thermal Sciences," *Experimental Thermal and Fluid Science*, Vol. 31, 2007, pp. 795-803.

Crepeau, J.C. and H.McIlroy, "Dye-Bubble Interactions in an Open Channel Flow," *Heat and Mass Transfer*, Vol. 42, 2005, pp. 104-111.

Crepeau, J.C., and H.M.McIlroy, "Dye Interactions with Rising Bubbles in a Crossflow," *Journal of Visualization*. Vol. 4, No. 3, 2001, p.215.

Crepeau, John C., S. Reese, H.M.McIlroy, and R. Lords, "Drying of Mock Spent Nuclear Fuel Elements," *Drying Technology*, Vol. 16, 1998, pp. 545-560.

Crepeau, John C., and R.L. Clarksean, "Similarity Solutions of Natural Convection with Internal Heat Generation," *Journal of Heat Transfer*, Vol. 119, 1997, pp. 183-185.

Crepeau, J.C., "Center Manifold Theory and an Application to Fluid Mechanics," *Dynamik-Evolution-Strukturen*, ed. J. Freund, Verlag Koster, Berlin, 1996, pp.101-107.

Crepeau, John C., and H. Herzel, "Comparison of Spectral Entropy with Statistical Entropy in Selected Physical Systems," *Journal of Non-Equilibrium Thermodynamics*, Vol. 21, 1996, pp.169-174.

Crepeau, John C., "Spectral Entropy and Self-Organization," *Lectures in the Sciences of Complexity*, Vol. 3, eds. L. Nadel and D. Stein, Addison-Wesley, 1992, pp. 493-495.

Crepeau, John C., and L. King Isaacson, "Spectral Entropy Measurements of Coherent Structures in an Evolving Shear Layer," *Journal of Non-Equilibrium Thermodynamics*, Vol. 16, 1991, pp. 137-151.

Crepeau, John C., "Deterministic Analysis of a Free Shear Layer," *AIAA Student Journal*, Vol. 28, Number 4, Winter 1991, pp. 2-5.

Crepeau, J.C., and L. King Isaacson, "On the Spectral Entropy Behavior of Self-Organizing Processes," *Journal of Non-Equilibrium Thermodynamics*, Vol. 15, 1990, pp. 115-126.

Isaacson, L.K., M.K. Denison, and J.C. Crepeau, "Unstable Vortices in the Near Region of an Internal Flow Cavity," *AIAA Journal*, Vol. 27, Dec. 1989, pp. 1667-1672.

REFEREED CONFERENCE PUBLICATIONS:

Siahpush, A., J. O'Brien, J.C.Crepeau, "Simple Heat Transfer Experiment to Evaluate the Solid/Liquid Phase Change Thermal Energy Storage System," paper IMECE2015-50450, 13-19 November 2015, Houston, TX.

Davis, K.L., D.L. Knudson, J.C. Crepeau, S. Solstad, Measurement of Diameter Changes during Irradiation Testing, 9th Nuclear Plant Instrumentation and Control & Human-Machine Interface

Technologies, 23-26 Feb. 2015, Charlotte, NC.

Siahpush, A., J. O'Brien, J.Crepeau, "Performance Enhancement of Solid/Liquid Phase Change Thermal Energy Storage Systems, paper #39786, IMECE, 14-20 November 2014, Montreal, Canada.

Owen, L., T. Xing, D. McEligot, J. Crepeau, R. Budwig, Laminar and Transitional Boundary Layer Entropy Generation over a Flat Plate Under Favorable and Adverse Pressure Gradients, Proc. ASME 2013 Fluids Engineering Summer Meeting, paper FEDSM 2013-16314.

Shrivastava, A., B. Williams, A. Siahpush and J. Crepeau, "Numerical Investigation of Melting with Internal Heat Generation in a Vertical Cylindrical Geometry," ASME Summer Heat Transfer Conference, 8-12 July 2012, Puerto Rico.

Daw, J., J. Rempe, J. Crepeau, "Update on Current Progress on Ultrasonic Thermometry Development," ANS 8th International Topical Meeting on Nuclear Power Plant Instrumentation, Control and Human Machine Interface, 22-26 July 2012, San Diego, CA.

Shrivastava, A., B. Williams, A. Siahpush and J. Crepeau, "Numerical Investigation of Melting with Internal Heat Generation in a Vertical Cylindrical Geometry," ASME Summer Heat Transfer Conference, 8-12 July 2012, Puerto Rico.

Griffard, C., S. Penoncello, J. Crepeau, "The Determination of Thermophysical Properties of Binary Mixtures of Molten Fluoride Salts Used in Nuclear Reactors," 18th Symposium of Thermophysical Properties, 24-29 June 2012, Boulder, CO.

Siahpush, A., Crepeau, J., "Scale Analysis of Convective Melting with Internal Heat Generation," ASME/JSME 8th Thermal Engineering Joint Conference, March 13-17, Honolulu, HI, paper #44162.

Howe, S., O'Brien, R.C., Taitano, W., Crawford, D., Jerred, N., Cooley, S., Crepeau, J., Hansen, S., Klein, A., Werner, J., The Mars Hopper: a radioisotope powered, impulse-driven, long-range, long-lived mobile platform for the exploration of Mars, *Proc. Nuclear and Emerging Technologies for Space*, Feb. 7-10, 2011, Albuquerque, NM.

Hasenoerhl, J., Crepeau, J., Exergy analysis of two proposed Mars Hopper propulsion configurations, *Proc. Nuclear and Emerging Technologies for Space*, Feb. 7-10, 2011, Albuquerque, NM, paper #3255.

Crepeau, John, "A Brief History of the T^4 Radiation Law," paper 88060, *Proc. ASME Heat Transfer Conference*, July 19-23, 2009, San Francisco, CA.

Crepeau, J., "Josef Stefan, Josef Loschmidt and Stigler's Law," ESI News, Vol. 3, Issue 2, 2008, Vienna, Austria, pp. 7-8.

Crepeau, John, "Josef Stefan and His Contributions to Heat Transfer," paper 56073, *Proc. ASME Heat Transfer Conference*, August 10-14, 2008, Jacksonville, FL.

Crepeau, J., A. Siahpush and B. Spotten, "Comparison of Computational and Quasi-Static Solutions of Phase Change with Heat Generation," Proc. 2007 ASME Heat Transfer Conference, Paper #32162, 8-12 July, Vancouver, BC, Canada.

Crepeau, J.C., and A.Siahpush, "Effects of Internal Heat Generation on Solidification," *Proc. ASME Heat Transfer Conference*, 2005, Paper #72079, San Francisco, CA.

Siahpush A., and J.C. Crepeau, "Integral Solutions of Phase Change with Internal Heat Generation," *Proc. 12th International Conference on Nuclear Engineering*, Paper No. 49412, 2004, Arlington, VA.

Crepeau, J.C., and H.M. McIlroy, "Flow Visualization of a Chemically Reacting Boundary Layer," Proc. International Mechanical Engineering Conference and Exposition, Orlando, Florida, November 5-10, 2000, pp. 443-449.

Crepeau, J.C., and H.M.McIlroy, "Effect of a Passivation Reaction on a Boundary Layer Flow," *Proc. 9th International Symposium on Flow Visualization*, ed. G.M.Carlomagno and I. Grant, Edinburgh, Scotland, 22-25 Aug. 2000, paper number 66.

Crepeau, J.C., S.J. Reese and H.M. McIlroy, "Drying Techniques for Wet-Stored and Particulate Spent Nuclear Fuel," Proceedings of the 11th International Drying Symposium (IDS '98), Thessalonica, Greece, August 19-22, 1998.

Clarksean, R.L., J.C. Crepeau, P. Mueller, S. Gifford, P. Harris, and J.C. Batty, "The Role of Numerical Modeling and Experiments in the Design of a Freezing Point Measurement System," *Proc. National Heat Transfer Conference*, Baltimore, MD, Vol. 10, 1997, pp. 129-136.

Lords, R.E., Windes, W.E., Crepeau, J.C., and Sidwell, R.W., "Drying Studies of Simulated DOE Aluminum Plate Fuels," *Proc. DOE Spent Nuclear Fuel and Fissile Material Management Meeting*, 16-20 June, 1996.

Crepeau, John C. and L.K. Isaacson, "Spectral Entropy as a Measure of Self-Organization in Transition Flows," *Proc. NATO Advanced Research Workshop on Self-Organization, Emerging Properties and Learning*, ed. A. Babloyantz, Plenum Press, Vol. 260, 1991, pp. 287-294.

Crepeau, John C. and L.K. Isaacson, "Unstable Bursts In the Near Region of an Internal Free Shear Layer," *Proc. First National Fluid Dynamics Congress*, Cincinnati, Ohio, Vol. 2, July 25-28, 1988, pp. 853-857, AIAA-88-3578-CP.

CONFERENCE OR INVITED PRESENTATIONS:
"Cómo mejorar su presentaciones en PowerPoint," (in Spanish) presentation to the ESPOL ASME Student Group. 21 January 2016.

"Un motor cohete integrado del propelente sólido y un estatorreactor (Integrated rocket ramjet)" invited presentation (in Spanish), I Seminario Internacional Prospectiva de la Ingeniería Mecánica, Universidad Técnica de Ambato, Ambato, Ecuador, 9 January 2016.

"How to Write Research Papers in English," presentation to the ESPOL ASME Student Group. 17 December 2015.

"Un motor cohete integrado del propelente sólido y un estatorreactor (integrated rocked ramjet) y el Saltador de Marte," invited video presentation, Universidad Nacional de Colombia, Sede Medellin, 4 December 2015.

"Soluciones analíticas del problema de Stefan con la generación del calor interna," invited presentation (in Spanish), Jornadas de Biotecnología y Fenómenes de Transporte, Universidad de Guayaquil, Ecuador, 24 November 2015.

"Un motor cohete integrado del propelente sólido y un estatorreactor (Integrated rocket ramjet)" invited presentation (in Spanish), Congreso Iberoamericano de Ingeniería Mecánica, Guayaquil, Ecuador, 12 November 2015.

"Exact Solutions to the Stefan Problem with Internal Heat Generation in a Plane Wall,", with D. McCord, A. Siahpush, and J.A.F.Brogin, 1st Thermal and Fluids Engineering Summer Conference, New York City, 9-12 August 2015.

"The Stefan Problem with Internal Heat Generation," Invited lecture, Brigham Young University, 26 March 2010.

"A Brief History of the T^4 Law," ASME Heat Transfer Conference, paper 88060, San Francisco, CA, 19-23 July 2009.

"The Stefan Problem with Internal Heat Generation," Invited lecture, University of Nevada, Las Vegas, 12 March 2009.

Crepeau, John, "Josef Stefan and His Contributions to Heat Transfer," Proc. ASME Heat Transfer Conference, paper 56073, August 10-14, 2008, Jacksonville, FL.

"Josef Stefan and Josef Loschmidt: Colleagues in Vienna, Contrasts of Stigler's Law," Invited lecture, Erwin Schroedinger Institute, University of Vienna, 21 May 2008.

Crepeau, J., A. Siahpush, B. Spotten, "Evaluation of Quasi-Static and Computational Solutions of Phase Change with Internal Heat Generation," APS Division of Fluid Dynamics, Salt Lake City, UT, November 18-20, 2007.

Crepeau, J., J.L. Rempe, J. Daw, and S.C. Wilkins, "Enhancements to High Temperature In-Pile Thermocouple Performance," Fuels NERI Panel, Winter Meeting, American Nuclear Society, Washington, DC, November 11-15, 2007.

Crepeau, J., J.L. Rempe, J. Daw, and S.C. Wilkins, "Progress Report on Enhancements to High Temperature In-Pile Thermocouple Performance," Global Nuclear Energy Partnership Annual Meeting, Litchfield Park, AZ, October 2-4, 2007.

Crepeau, J., A. Siahpush and B. Spotten, "Comparison of Computational and Quasi-Static Solutions of Phase Change with Heat Generation," Proc. 2007 ASME Heat Transfer Conference, paper #32162, 8-12 July, Vancouver, BC, Canada.

Crepeau, J., "From Rags to Research: The Life of Josef Stefan," *bridges*, online magazine of the Austrian Office of Science and Technology, Austrian Embassy of the United States, http://www.ostina.org/content/view/1667/640/, December 2006.

Crepeau, J. and A. Siahpush, "Solidification and the Effects of Internal Heat Generation," APS Division of Fluid Dynamics, Chicago, IL, November 20-22, 2005.

"Effects of Internal Heat Generation on Solidification," with Ali Siahpush, ASME Heat Transfer Conference, San Francisco, CA, July 17-22, 2005.

"Integral Solutions of Phase Change with Internal Heat Generation," with Ali Siahpush, International Conference on Nuclear Engineering, Washington, DC, April 2004.

"Fundamental Equations for Fluid Flow in a Geocentrifuge," poster presented at the American Geophysical Union, San Francisco, CA, December 8-12, 2003.

"Computational Modeling of the Fluid Flow in a Representative Spent Nuclear Fuel Canister," American Nuclear Society 2002 Annual Meeting, Hollywood, Florida, June 9-13, 2002.

"Flow Visualization of a Chemically Reacting Boundary Layer," International Mechanical Engineering Conference and Exposition, Orlando, Florida, November 5-10, 2000.

"Effect of a Passivation Reaction on a Boundary Layer Flow," 9th International Symposium on Flow Visualization, Edinburgh, Scotland, August 22-25, 2000.

"Flow Visualization in the Presence of a Surface Reaction," American Physical Society, Division of Fluid Dynamics, New Orleans, LA, Nov. 1999.

"Flow Patterns in a Generic Spent Nuclear Fuel Canister," Gallery of Fluid Motions: Video, American Physical Society, Division of Fluid Dynamics, Philadelphia, PA, November 22-24, 1998.

"Drying Techniques for Wet-Stored and Particulate Spent Nuclear Fuel," International Drying Symposium, Thessalonica, Greece, August 19-22, 1998.

"The Role of Numerical Modeling and Experiments in the Design of a Freezing Point Measurement System," National Heat Transfer Conference, Baltimore, MD, August 8-12, 1997.

"Deterministic Analysis of a Blasius Boundary Layer," Paper AF6, American Physical Society, Division of Fluid Dynamics, Scottsdale, Arizona, 24-26 November 1991.

"Spectral Entropy Behavior in Self-Organizing Processes," Invited lecture, Humboldt University, Berlin, Germany, 21 October 1991.

"Dynamical Systems Study of Mixing and Boundary Layers," Institute of Computer Applications in Science and Engineering, NASA Langley Research Center, Hampton, Virginia, 9 August 1991.

"Deterministic Analysis of a Free Shear Layer," 17th Congress of the International Council of the Aeronautical Sciences, Stockholm, Sweden, 9-14 September 1990, Paper 7.9.2.

"Spectral Entropy and Self-Organization," 1990 Summer School on Complex Systems, Santa Fe Institute, 11 June 1990, Santa Fe, New Mexico.

"Unstable Bursts In the Near Region of an Internal Free Shear Layer," First National Fluid Dynamics Congress, Cincinnati, Ohio, 25 July 1988.

BOOK/BOOK CHAPTER:
Crepeau, John, Why Study Mechanical Engineering?, in *Mechanical Engineering for the Curious*, Ed. Kishor Vaidya, The Curious Academic Publishing Group, 2015, ASIN: B015UGO2CK.

Jožef Stefan: His Scientific Legacy on the 175 Anniversary of His Birth. Ed. John Crepeau, Bentham Scientific Publishers, 2013, DOI: 10.2174/97816080547701130101.

BOOK REVIEWS:
"Introduction to Hydrodynamic Stability," by P.Drazin, review by J.C. Crepeau, *Applied Mechanics Review*, Vol. 56, May 2003, pp. B43-B44.

"Theory and Applications of Nonviscous Flows," by R.K. Zeytounian, review by J.C. Crepeau, *Applied Mechanics Review*, Vol. 55, Sept. 2002, B97-B98.

"Nonlethal Weapons: War without Death," by D.A. Morehouse, review by J.C. Crepeau, *Peace and Change*, Vol. 25, October 2000, pp. 542-543.

"The Other Missiles of October: Eisenhower, Kennedy, and the Jupiters 1957-1963," by P. Nash, review by J.C. Crepeau, *Peace and Change*, Vol. 25, July 2000, pp.423-424.

"Tomorrow's Professor," review by J.C. Crepeau, *ASEE Prism*, December 1997, pp.34-35.

"Probability and Heat," by Friedrich Schlögl. review by J.C. Crepeau, *Journal of Non-Equilibrium Thermodynamics*, Vol. 17, 1992, pp. 191-192.

TECHNICAL REPORTS:
Crepeau, J., J.L. Rempe, J.E. Daw, D.L. Knudson, K.G. Condie, S.C. Wilkins, "Enhancements to High Temperature In-Pile Thermocouple Performance," Final Report for DE-FC07-06ID14738, submitted to DOE, March 2008.

Daw, J.E., J.L. Rempe, D.L. Knudson, K.G. Condie, J.C. Crepeau, "Viability of Dilatometry Techniques for High Temperature In-Pile Measurements," INL Technical Report INL/EXT-07-13120, March, 2008.

Daw, J.E., J.L. Rempe, D.L. Knudson, S.C. Wilkins, J.C. Crepeau, "HTIR-TC Compensating Extension Wire Evaluations," INL Technical Report INL/EXT-07-13121, September, 2007.

EXTERNALLY FUNDED RESEARCH:
"LVDT-Based Methods for Thermal Measurement," Idaho National Laboratory, Oct. 2013-Oct. 2016, $120,000.

"Power Cycle Senior Design Project for the Mars Hopper," Idaho National Laboratory, June 2011-Sept. 2011, $5,000. Part 2.

"Fundamental Fluid Physics Studies for Energy Efficiency and Sustainability," DOE-EPSCOR, July 2010-June 2014, $584,961.

"Graduate Fellowship in Nuclear Engineering at the University of Idaho," Nuclear Regulatory Commission, July 2010-April 2014, $200,000.

"Power Cycle Senior Design Project for the Mars Hopper," Idaho National Laboratory, June 2010-Sept. 2010, $5,000. Part 1.

"Thermal and Propulsion Systems Analysis of the Mars Hopper," Idaho Space Grant Consortium, May 2010-April 2012, $50,000.

"DOE Scholarships at the University of Idaho," NEUP Scholarships and Fellowships Program, June 2009-May 2011, $30,000.

"High Temperature In-Pile Thermocouples," INL LDRD, October 2006-September 2008, $110,000.

"Enhancements to High Temperature In-Pile Thermocouple Performance," DOE Nuclear Energy Research Initiative (NERI), March 2006-March 2008, $399,999.

"Gas Test Loop Booster Fuel Hydraulic Tests," BEA, Idaho National Laboratory, September 2005-August 2006, $21,085.

"Heat Transfer Enhancement Using Oval Tubes and Vortex Generators," BBWI, March 2000-April 2002, $141,050.

"Chaos Modeling of Flow in Porous Media," BBWI, June 2000-September 2001, $27,541.

"Stabilization of Particulate Spent Nuclear Fuels Using Sodium Silicate," Lockheed Martin Idaho Technologies," April 1998-September 1998, $20,000.

"Drying Simulation Experiments," Lockheed Martin Idaho Technologies, June 1998-September 1998, $24,541.

"Pilot-Scale Oxide Reduction Impeller Design," Argonne National Laboratory, December 1997-

June 1998, $24,987.

"Flow Visualization of Forced and Natural Convection in Internal Cavities," Department of Energy, Environmental Management Science Program, October 1997-September 2000, $1,077,000.

"Development of the Virtual Laboratory Experience," (Co-PI), Idaho SBOE, June 1997-June 1999, $179,400.

"Drying Characteristics of Mock Spent Nuclear Fuels," Lockheed Martin Idaho Technologies, May 1995 - September 1997, $184,597.

"Freezing Point Measurement System for Chemical Weapons," Associated Western Universities, May 1996-September 1996, $31,162.

"Remote Gas Analyzer Experiments," Lockheed Martin Idaho Technologies, August 1995-March 1996, $11,622.

"A Thermodynamic Approach to Fluid Transition," National Science Foundation-North Atlantic Treaty Organization Postdoctoral Fellowship, July 1992 - June 1993, $46,800.

TEACHING:
A thorough teaching portfolio has been assembled and is available upon request.

MAJOR PROFESSOR COMMITTEE SERVICE:
Doctoral:

- Troy Howe, Summer 2015: Radioisotope Fueled Pulsed Power Generation System for Propulsion and Electrical Power for Deep Space Missions
- Joshua Daw, Spring 2015: Development and Demonstration of Thin Waveguide Ultrasonic Thermometer
- Jay Roach, Spring 2014: Ultra-High Frequency Induction Energy Effects on Refractory Oxides as Applied to Processing and Immobilization of Radioactive Waste
- Thomas Foust, Spring 2004: Heat Transfer Enhancement at Minimal Pressure Drop Through the use of Oval Tubes and Winglet Vortex Generators
- Byron Hansen, Spring 2002: A Code for Modeling Physiological Flows
- Daniel Wachs, Spring 2002: Modeling the Ignition Behavior of Uranium Corrosion Products

Masters:

- Troy Howe, Fall 2013: Design of a Radioisotope Thermo-Voltaic Power Source by Laser Driven Isotope Surrogate Assembly
- Drew Flerchinger, Fall 2013: Experimental Gas Dynamics Comparison of the Immersed and Line Heating Approaches for the Mars Hopper Concept
- Lee Fuller, Fall 2013: Development of a Thermally Activated Pyrotechnic Initiator Based on Fabrication of Low Temperature Co-Fired Ceramic Components
- Garrett Hanson, Spring 2012: Internal Forced Flow Boiling of Carbon Dioxide Applied to the Mars Hopper

- Timothy Hyde, Spring 2012: Fabrication and Pre-irradiation Characterization of a Minor Actinide and Rare Earth Containing Fast Reactor Fuel Experiment for Irradiation in the Advanced Test Reactor
- Matthew Hanson, Spring 2011: The Immersed Heater Method Apploied to the Mars Hopper
- Blaine Spotten, Summer 2008: Computational Fluid Dynamics Simulation of the Stefan Problem with Internal Heat Generation
- Joshua Daw, Spring 2008: Options to Enhance the Performance of a High Temperature Irradiation Resistant Thermocouple
- Daniel Griffeth, Spring 2006: Evaluating the Need to Dry Calcine Prior to Disposal at Yucca Mountain
- Brian Herman, Fall 2005: Determining the Mechanical Properties of a Functionally Graded Material using the Split Hopkinson Pressure Bar Method
- Jeremy Freeman, Fall 2003: Drying Process Optimization Using the Second Law of Thermodynamics: Overview and Applications
- Philip Wallstedt, Spring 2003: Friction Factor Measurements in Finned Oval and Circular Tube Heat Exchangers with Vortex Generators
- Robert Spears, Spring 2001: Finite Element Mesh Sensitivity Study of Low Velocity Elastic/Plastic Impact Using ABAQUS
- Wesley Benjamin, Spring 2001: Sodium Hydroxide Carryover: A Study of HEPA Filter Preservation
- Scott Jackson, Spring 2001: Modeling of Residual Stresses Produced During Plasma Spraying of Thick Ceramic Coatings on Metal Substrates
- Hugh M. McIlroy, Spring 2000: Visualization of the Effect of a Surface Reaction on Flow Over a Flat Plate

Served as major professor for 65 Masters of Engineering (non-thesis) students

SENIOR DESIGN CAPSTONE PROJECTS:

- Integrated Rocket Ramjet, Part II, AY 2015-16: Jesse Caudle, Marc Compton, Chris Fraser, Alexx Jensen
- Integrated Rocket Ramjet, Part I, AY 2014-2015: Steven Elsbury, Nathan Randall, Chance Sundquist, Robert Willis
- Small Scale Brayton Cycle for Space Applications (Mars Hopper), AY 2011-2012: Nathan Bartel, Lee Fuller, Justin Mendonca, Trever Pope, Erik Sterbentz
- Mars Hopper Exsploration Vehicle, AY 2010-2011: Kacey Bowen, Tamara Crowther, Travis Hunter, Jacob Wood

AWARDS:

- Nominated, Annual Award for Teaching Excellence, University of Idaho, 2003-2004
- Kodak Award for Excellent Visualized Image, Visualization Society of Japan, 2002
- Idaho National Engineering and Environmental Laboratory Summer Faculty Fellow, 2001
- Summer Faculty Researcher, Argonne National Laboratory, Idaho Falls, Idaho, 1997
- NASA-ASEE Summer Faculty Fellow, NASA-Ames Research Center, 1996

- Associated Western Universities Summer Faculty Fellow, 1995
- Jesse and Mabel Hoffman Endowment Teaching Award, University of Idaho, 1995
- Instructor of the Year, Department of Mechanical Engineering, University of Utah, 1990-1991
- NSF Advanced Study Institute Travel Award, 1991
- John F. McCarthy, Jr. Memorial Award for the research paper entitled, "Deterministic Analysis of a Free Shear Layer," presented by the International Council of the Aeronautical Sciences during its 17th Congress held in Stockholm, Sweden, 9-14 September, 1990
- Abe M. Zarem Award for the research paper entitled, "Deterministic Analysis of a Free Shear Layer," presented by the American Institute of Aeronautics and Astronautics, Reno, Nevada, January, 1990
- California Alumni Scholar, University of California, Berkeley, 1979-1983

PROFESSIONAL REGISTRATION:
Registered Professional Engineer, State of Idaho, License #7902.

PROFESSIONAL SOCIETY MEMBERSHIPS:
ASME, APS, ASEE

PROFESSIONAL SERVICE:
ABET ME Program Evaluator, 2013-present
Member, Executive Board, ASME Department Heads Committee, 2010-2013.
Faculty Representative, Federal Demonstration Partnership, National Academy of Science, 2014-present
ASME Scholarship Committee
ASEE SMART Fellowship Review Committee
Tenure Review: Washington State University, South Dakota State University, Idaho State University

Reviewer for:
DOE, Nuclear Engineering University Programs
DOE, Advanced Nuclear Research for Universities Grant Program
DOE Nuclear Engineering Education Research (NEER) Grant Program
US Civilian Research and Development Foundation
Journal of Thermophysics and Heat Transfer
International Journal of Heat and Mass Transfer
Applied Thermal Engineering
Progress in Nuclear Energy
ASME Journal of Solar Energy Engineering
Journal of Porous Media
Journal of Heat Transfer
Heat and Mass Transfer
AIAA Journal of Aircraft
International Conference on Nuclear Engineering, 1997, 2009
ASME National Heat Transfer Conference, 1995, 1996
International Mechanical Engineering Conference, 1995, 2012, 2013, 2014

US-EU-China Thermophysics Conference, 2009
DOE SBIR-STTR, 2009

Major Committee Assignments:
Chair, Search Committee, Electrical and Computer Engineering Department Chair, 2014-2015.
Member, Search Committee, Associate Dean for Research, College of Engineering
Topic Co-Organizer, ASME/JSME 2011 8th Thermal Engineering Joint Conference
UI Strategic Planning Steering Committee, 2010
UI University Promotions Committee, 2009-2010
Liaison Member, Faculty Council, 2007-present
Member, Technical Committee, APS Division of Fluid Dynamics, 2007 Annual Meeting
College of Engineering Strategic Planning Committee, 2006-2007
Search Committee, Dean, College of Engineering, 2004
UI Strategic Reinvestment Program, 2002
Dean's Promotion and Tenure Task Force, 2000-2002
ASME Visualization of Heat Transfer Committee (K-22), 2000-present
Search Committee, UI-IF Dean, 2000
Graduate Committee, Department of Mechanical Engineering, 1998-present
Strategic Planning Committee, Department of Mechanical Engineering, 1998-2000
Planning Committee, Department of Mechanical Engineering, 1997-1998
ASME Idaho Section Scholarship Committee, 1997-1998
Search Committee, Department Chair, Department of Mechanical Engineering, 1995
Task Force for Engineering in Boise, 1994
Deans Council, College of Engineering, University of Utah, 1988-1989
Chairman, Engineers Week Committee, University of Utah, 1988-1989

CONSULTING:
Instructor, Professional Publications Fundamentals of Engineering Exam Review Course, 2012-present
Checker, Engineering Fluid Mechanics, 9th edition, June-July 2008
Expert Witness, Weeks v. EIRMC, May-September 2005
Puna Geothermal Ventures, August 2002-August 2003
North Star Spaceport, May 1999-August 1999
Idaho Technologies, October 1998-March 1999

TRAINING:
Business for Researchers, 2-6 June 2014, Moscow, Idaho
Mental Health First Aid Course, 10-11 July 2014, Moscow, Idaho
Transformational Leadership and Training Workshop, "Academic Leadership: A Seminar for Faculty Considering or Continuing in Academic Leadership Roles," 24 October 2009.

COMMUNITY SERVICE:
Scoutmaster, Asst. Scoutmaster, Cedar Badge, BSA National Youth Leadership Training, June 2007-2009
Cubmaster, Pack 135, Boy Scouts of America, June 1995 – July 1997
Member, Board of Directors, Westmark Federal Credit Union, May 1996 – May 1999
Scoutmaster, Troop 36, Boy Scouts of America, May 1987-September 1989

Youth baseball, softball, basketball and soccer coach
Missionary, Church of Jesus Christ of Latter-day Saints, Guatemala, August 1984-August 1986

SPECIAL SKILLS:
Programming languages: Mathematica, FORTRAN and BASIC.
Fluent in written and verbal Spanish; working knowledge of German.
SECRET clearance, 1991-1992

CITIZENSHIP:
US Citizen.