EWTTKEWNWO XKVCG Fgdgpftc M0 Fcu RGTUQPCN FCVC< Date of Birth, April 5, 1948; Naturalized US C



2018- present Professor Emeritus of Mechanical Engineering, University of Alaska Fairbanks 1997-1998 & 2006-2007 Chair, Department of Mechanical Engineering, University of Alaska 1993-2018 Professor of Mechanical Engineering, University of Alaska 1988-1993 Associate Professor of Meghanical Engineering, University of Alaska. 1984-1988 Assistant Brthfessor of Mechanical Engineering, University of Alaska. 1983-1984 Research Engineer, Naval Surface Weapons Center, Dahlgren, VA. 1979-1983 Mech. Eng. Staff Consult. (half-time); BIF, A Unit of General Signal, RI. 1980-1983 Instructor (half-time), University of Rhode Island, Kingston, RI. 1978-1980 Teaching Assistant, University of Rhode Island, Kingston, RI. 1974-1978 Mechanical Engineer, Tower Iron Works, Inc., Seekonk, MA. 1972-1974 Research Assistant, Brown University, Providence 1d

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2011 JanMay	NSF AK EPSCoR Research Fellowship (R. Vajjha)	NSF, Alaska EPSCoR	\$23,616
2010-2011	Doctoral Research Fellowship Support ( R. Vajjha)	Dean, Grad. School Univ. of Alaska	\$27,600
2010-2011	Nanofluids for Applications in NASA Missions	NASA/EPSCoR/ASGP (w	\$40,000 vith UAF salary match)
2009-10	Doctoral Research Fellowship Support ( R. Vajjha)	Dean, Grad. School Univ. of Alaska	\$25,880
2009-10	Research Fellowship Support ( R. Strandberg)	Alaska Space Grant Prog.	\$5,000
2009 Summer	Research Assistantship (R. Vajjha)	EPSCoR	\$2,120

2008 Fall

2003-2004	Graduate Student Support Micro scale Heat Transfer and research on Nanofluids(for D. Kulkarni	Center for Nanosensor Tech. (CNT)/USDOD )	\$38,000
2003-2004	Graduate Student Support Heat and Fluid Flow Modeling of Gas Hydrates ( for V. Subbaihaa.)	Arctic Region Super Computing Center (ARSC)	\$36,500
2003	CFD Modeling of Gas Hydrates (summer support for D.Das)	Arctic Region Super Computing Center (ARSC)	\$ 18,500
2002-2003	Graduate Student Support Thermal Management of Micro/Nano chips (for D. Kulkarni)	Center for Nanosensor Tech. (CNT) / USDOD	\$32,500
2003	Thermal research on electronic cooling (summer support for D. Das)	CNT	\$37,000
2001-2002	Graduate Student Support Heat Transfer Effects on GTL Transmission (for S. Nerella)	Petroleum Development Lab/ USDOE	\$15,000
2000-02	ITM Syngas Reactor for Natural Gas Conversion	Air Products & Chemicals, Inc., PA	\$87,800
1997	Lecturing and Research, second year grant	Rotary International, IL	\$5,000
1996	Lecturing and Research in a Developing Country	Rotary International, IL	\$5,000
1995	Design of a Rocket Motor Test Stand	Alaska Space Grant, NASA	\$5,000
1993	Graduate Student Support Modeling of Ice Coring Devices (for S. Hazarika)	Polar Ice Coring Office	\$8,800
1993	Monitoring Heater Testing	Rheem Manufacturing Company, AR	\$3,000
1993	Paper presentation at Fourth International Workshop on Ice Drilling, Tokyo	UAF Faculty Travel Grant	\$700
1992-93	Cold Weather Testing of Outdoor Gas-Fired Heaters	Rheem Manufacturing Company, AR	\$48,900
1992-93	Graduate Student Support, Finite Element Analysis for Thermal Drilling ( for S. Hazarika & D. Choi)	Polar Ice Coring Office	\$17,600
1992-93	Curriculum Development in Propulsion Engineering	Alaska Space Grant, NASA	\$5,000

1992	School of Engineering Machine Shop Support, Drill Fabrication.	Polar Ice Coring Office	\$4,000
1991-92	Graduate Student Support, Thermal Modeling of Ice Coring Operation ( for S. Jois)	Polar Ice Coring Office	\$17,200
1991	Performance Evaluation of New Air Intake Fixtures on Heaters	Rheem Manufacturing Company, AR	\$39,200
1990	Testing of Heaters to Eliminate Icing Problem	Rheem Manufacturing Company, AR	\$39,700
1989	Moisture Accumulation in Insulated Walls	U.S. Army Cold Region Research &Engin. Lab	\$7,200
1988-89	Graduate Student Support, Gas Hydrate Research (for D. Scott)	Petroleum Development Laboratory/U.S. Department of Energy	\$10,400
1988-89	Tandem Propeller Application for Ships	Marine Highway System, AK	\$22,800
1988	Computation of Fluid Flow and Heat Transfer in VLS	U.S. Navy/SCEEE	\$27,200
1987-88	Halon System Design for Remote Diesel Power Plants	Dept. of Transportation & Public Facilities, AK	\$20,500
1987-88	Graduate Student Support, Fire Protection Research (for V. Srivastava)	Inst. of Northern Eng. & State of Alaska	\$6,000
1986-87	Photovoltaic Systems for A <b>flas</b> ka	Dept. of Transportation & Public Faci`ire	\$12,000



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2016 summer	f nanoscale drug powder in blood, With Co-PI Jason Slats	UAF BLaST Program	\$5,000		
2008	ch Scale Test Setup for Fan Coil Testin th Co-PI Roy Strandberg	g CCHRC	\$6,100		
2007	Construction of a Specific Heat Apparatus With Co-PI Robert Paul Shymanski	EPSCoR, Alaska	\$3,000		
2006	Comprehensive Evaluation of Bridge Anti-icing Technologies with J. Zhang	Alaska Dept. of Trans. and Publ. Fac. Anchorage	\$65,000		
2006	Preparator of proposal for "Equipment for Thermal Systems Lab for Microelectronic Packaging " with D. Thorsen		\$100,000		
2005	Crisis Intervention Training for Young Adults (Students) at NAMI	Eli Lilly Company	\$2,500		
2004-05	HVAC Systems for Long Range Radar Stations	Aero-Thermo, Inc US Dept. of Defense	\$25,000		
1998-99	Energy Research with Fuel Cell	U.S. Dept. of Energy	\$1 Million		
1998-99	Evaluation of Syngas Generators	Air Products, PA	\$37,800		
1990	Engineering Development of PICO Ice Test Well Facility	Polar Ice Coring Office	\$7,000		
1989-90	Waste Heat Driven Refrigeration Unit for Alaska	Alaska Energy Authority	\$22,400		
1987-88	Alaskan Commodities Irradiation Project	U.S. Dept. of Energy	\$450,000		
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o dante o		Masters	Title	Graduation
of Student	c	or Ph.D.	of Thesis or Project	Date

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Vineet Srivastava	Masters	Finite Element Modeling of Hydrate	Summer	1988
David Scott	Masters	Heat Transfer Model in Hydrate	Spring	1990_

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Sirisha Nerella Devdatta Kulkarni	Masters Masters	Heat Transfer Effect on GTL Transmission Summer 2002 Thermal Management of Micro/Nano Chips Summer 2003
Vijay. Subbaihaa.	Masters	Heat & Fluid Flow Modeling of Gas Hydrate Fall 2004
Devdatta Kulkarni	Ph.D.	Fluid Flow and Heat Trans.inMicro/Nano Scales, Summ 2007
Praveen Namburu	MS	Numerical Modeling of Nanofluids Summer 2007
Brij Mahagaonkar	MS	Thermophysical Properties of nanofluids Summer 2007
Ravikanth Vajjha	MS	Measurements of Properties & Heat Transfer Fall 2008
Roy Strandberg	MS	Nanofluids for Building Heating & Cooling Summer 2009
Bhaskar Sahoo (Co-Chair)	) MS	Fluid Dyn. and Thermal Prop. of Nanofluids Summer 2008
Sravan K. Allam	MS	Application of Nanofluids in Auto. Radiators Incomplete
Hanumanth Konakanchi	MS	Electrical Conductivity of Nanofluids Summer 2010
Dustin Ray	MS	Nanofluids in Plate and compact heat exchangers Summer 2013
Ravikanth Vajjha	Ph.D.	Rheology and Heat Transfer of Nanofluids Summer 2014
Jabez Chinnam	MS	Surface Tension and Contact Angle of Nanofluids Spring 2014
Dagganadha Satti	Ph.D.	Thermophysical Properties and CFD of nanofluids Summer 2015
Roy Strandberg	Ph.D.	Building heating with nanofluids exper. & number. Summer 2018
Dustin Ray	Ph.D.	Nanofluids in mierechannel heat exchangers Summer 2018
Jason Slats	MS	CFD studies of nanoscale drug powder in blood Summer 2018
Robbin Garber-Slats	MS	Nanofluids



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At University of Rhode Island

### Eqwtugu Vcwi j v< Undergraduate: Statics

Statics Dynamics Engineering Graphics Fluid Mechanics Advanced Engineering Mathematics (Engineering Analysis paper II) Mechanical Engineering Laboratory Engineering Science Review Course for Practicing Engineers Preparing for EIT

Nanofluids and Comparison with Theory," ASME Journal of Thermal M

Exchangers Using Nanofluids and Base Fluids for NASA Applications," Proceedings: Thermal and Fluids Analysis Workshop, NASA Langley Research Center, Newport News, VA pp. 25. http://tfaws.nasa.gov/TFAWS11/

- Konakanchi, H., Vajjha, R.S., Misra, D. and Das, D.K., 2011, "Electrical Conductivity Measurements of Nanofluids and Development of New Correlations," Journal of Nanoscience and Nanotechnology, Vol. 11, 6788-6795.
- Vajjha, R.S., Das, D. K. and Kulkarni, D.P., 2010, "Development of New Correlations for Convective Heat Transfer and Friction Factor in Turbulent Regime for Nanofluids," International J. Heat and Mass Transfer, Vol. 53, pp. 4607–4618.
- Vajjha, R.S., Das, D. K. and Namburu, P.K., 2010, "Numerical Study of Fluid Dynamic and Heat Transfer Performance of Al<sub>2</sub>O<sub>3</sub> and CuO Nanofluids in the Flat Tube of a Radiator," International J. Heat and Fluid Flow, Vol. 31, pp. 613–621.
- Strandberg, R.T. and Das, D. K., 2010, "Influence of Temperature and Properties Variation on Nanofluids in Building Heating," Energy Conversion and Management, Vol. 51 pp. 1381-1390. mbt
- Das, D.K<sub>raf</sub>O<sup>1</sup>0, atdse of DifferentoTypes of Energy and Minimization of their Impact DifferentoTypes V Environment," Proceedings: Energy and Environmental Impacts Related to Sustainability, Institute of Technical Education and Research, Bhubaneswar, India, pp. 10-15

Strendberg, R.T. and Das, D. K<sub>oa</sub>2010, "Finned Tube Performance Evaluation with Nanofluids and Conventional the transformed to the performance of the performance o

Sale, D. Vajjha, R.S., Ganguli, R.,

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Dasari, J, Hazari

Bargar, H.E. and Das, D.K., 2002, "Building Pressurization in Extreme Cold Climates," Proceedings: 11<sup>th</sup> International Conference,

Vajjha, R.S. and Das, D.K., 2012, "Performance of Nanofluids in Microchannel Heat Exchangers", <u>Proceedings:</u> <u>Thermal and Fluids Analysis Workshop</u>, NASA Jet Propulsion Laboratory, Pasadena, CA, pp. 39-40, <u>http://tfaws.nasa.gov/TFAWS12/</u>

Das, D.K., 2012, "Computational Study of Nanofluids in a Heat Exchanger Proving Their Thermal Energy Efficiency, <u>Proceedings: 99<sup>th</sup> Indian Science Congress</u>, Bhubaneswar, India, pp. 24-25.

- Strandberg, R. and Das, D.K., 2011, "Experimental Examination of A Hydronic Coil Test Bed Using Water and Nanofluids" <u>ASME Graduate Students Technical Conference</u>, University of Nevada, Los Vegas. Appears at the 2011 ASME Dist D GSTC website.
- Vajjha, R. and Das, D.K., 2011, "Study on the Viscosity of Aluminum Oxide Nanofluids" <u>ASME Graduate</u> <u>Students Technical Conference</u>, University of Nevada, Los Vegas. Appears at the 2011 ASME Dist D GSTC website.
- Das, D. K, Vajjha, R. S., Strandberg, R. T., and Kulkarni, D. P., 2010, "Enhancement of the Performance of Thermal Control Systems Using Nanofluids," <u>Proceedings: Thermal and Fluids Analysis Workshop</u>, NASA Johnson Space Center, Houston, TX, <u>http://tfaws.nasa.gov/TFAWS10/</u>
- Strandberg, R. and Das, D.K., 2010, "Nanofluids Improve the Thermal Performance of Building Heating Systems" <u>ASME District D Graduate Students Technical Conference</u>, Washington State University, Pullman, appears at the 2009 ASME GSTC website.
- Avadhanula, V., Das, D.K., and Lin, Chuen-Sen, 2009, "Comparison of the Thermal Performance of Nanofluids and Conventional Fluids in Recovering Exhaust Waste Heat from a Stationary Diesel Engine" <u>ASME District D Graduate Students Technical Conference</u>, Washington State University, Pullman, appears at the 2009 ASME GSTC website.
- Sahoo, B. and Das, D., 2008, "Measurement of the Thermal Conductivity of Silicon Dioxide Nanofluid to Compare its Performance with Conventional Fluids," <u>Proceedings: American Association for the Advancement of Science</u>, 2008 Arctic Science Conference, Fairbanks, Alaska, p. 46.
- Strandberg, R. and Das, D., 2008, "Comparison of Nanofluids Performance in Building Heating Systems," <u>Proceedings: American Association for the Advancement of Science</u>, 2008 Arctic Science Conference, Fairbanks, Alaska, p. 50.
- Vajjha, R. and Das, D., 2008, "Evaluation of the Performance of Nanofluids as Automobile Engine Coolants," <u>Proceedings: American Association for the Advancement of Science</u>, 2008 Arctic Science Conference, Fairbanks, Alaska, p. 54.
- Mahagaonkar, B. and Das, D., 2007, "Viscosity Measurements of Nanofluids for Their Applications in the Arctic and the Sub Arctic Regions," <u>Proceedings: American Association for the Advancement of Science</u>, 2007 Arctic Science Conference, Anchorage, Alaska, p. 44.
- Namburu, P. and Das, D., 2007, "Numerical Investigation of Convective Heat Transfer and Fluid Dynamic Behavior of Nanofluids for Applications in Cold Regions," <u>Proceedings: American Association for the Advancement of Science</u>, 2007 Arctic Science Conference, Anchorage, Alaska, p. 49.
- Vajjha, R. and Das, D., 2007, "Density and Specific Heat Measurements of Nanofluids for Their Applications in Cold Regions," <u>Proceedings: American Association for the Advancement of Science</u>, 2007 Arctic Science Conference, Anchorage, Alaska, p. 65.
- Namburu, P., Kulkarni, D., Das, D., 2006, "Reduction of Pollution and Energy Saving in Ships in the Arctic Region Using Nanofluids," <u>Proceedings: American Association for the Advancement of Science</u>, Arctic Science Conference, Fairbanks, Alaska, p. 50.



Kulkarni, D., Namburu, P., Das, D., 2006, "Mitigation of Air Pollution in the Arctic and Subarctic Regions Using Nanofluids to Heat Buildings," Proceedings: American Association for the Advancement of Science, Arctic Science Conference, Fairbanks, Alaska, p. 38.

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Das, D.K. and Kulkarni, D.P., 2005, "A Theoretical Investigation on Heat Transfer Characteristic of Nanofluids," Proceedings: American Association for the Advancement of Science, 56th Arctic r Science Conference, Kodiak, Alaska, p. 14. Altka,

Das, D.K. and Annadurai, V.S., 2004, "Recovery of Natural Gas from Hydrates Via a Thermal Stimulation Technique," Proceedings: Bridges of Science Between North America and the Russian Far East: Past, Present and Future, An International Conference on the Arctic and North Pacific, Edited by Sergienko, V.I., Vladivostok, Russia, p. 49.

Kulkarni, D.P. and Das, D.K., 2003, "Heat Transfer Model for Designing Cooling Systems for Migro-Beinger onic Chips, Proceedings: American Association for the contemport of Tast: E Nav Am

American Association for the Advancement of Science, 47th Arb

Zhang, J., Das, D., Peterson, R. and Goering, D., 2007, "Comprehensive Evaluation of Bridge Anti-icing Technologies—Final Report,

- Das, D.K. and Briggs, R.W., 1991,"A Photovoltaic Energy System at an Alaskan Site," Alaska Department of Transportation and Public Facilities Report No. AK-RD-91-05, 47 pp.
- Jois, S.S., Das, D.K. and Koci, B., 1990, "Temperature Rise in Ice Cores During a Water Jet Cutting Process," Polar Ice Goring Office Tech. Rept. No. 90-3, University of Alaska Fairbanks, 9 pp.
- Johnson, R.A., Das, D.K. and Hok-Barker, C., 1990, "A Feasibility Study for Waste-Heat Driven Absorption Refrigerat

Amaral, A.M., and Das, D.K., 1982, "Seismic Analysis of Butterfly Valve with Matryx Pneumatic Operator," Rept. No. DES-TR-82-6 for BIF-General Signal and ,

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#### PRESENTATIONS AT CONFERENCES:

A Computational Study of Nanofluids Performance in Automobile Radiators, Keynote Address at 3<sup>rd</sup> KIIT International Symposium on Advances in Automotive Technology, KIIT University, December 26, 2014, Bhubaneswar, India.

Enhancement of Heat Transfer Performance Using Nanofluids, Keynote Address at All India Seminar on Recent Advances in Thermal Engineering ,The Institution of Engineers (India), Odisha State Center, January 11, 2014, Bhyabaneswar, India.

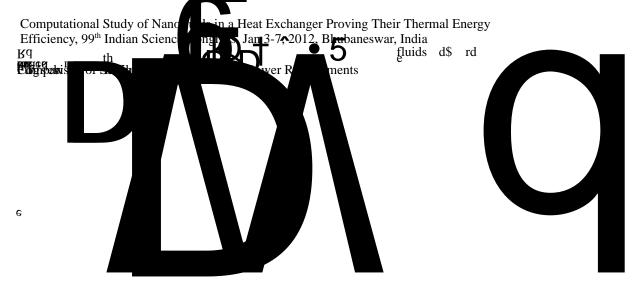
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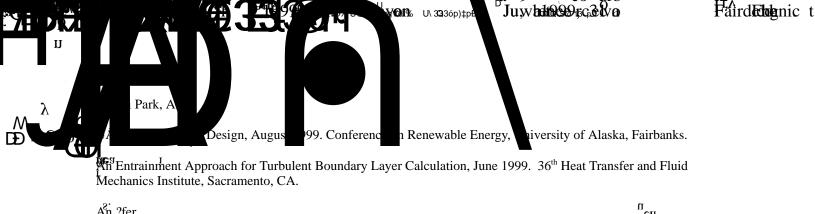
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> Application of Nanotechnology to Enhance the Thermal Performance of Automotive Radiators, 100<sup>th</sup> Indian Science Congress, Jan. 2-6, 2013, Kolkate Indian



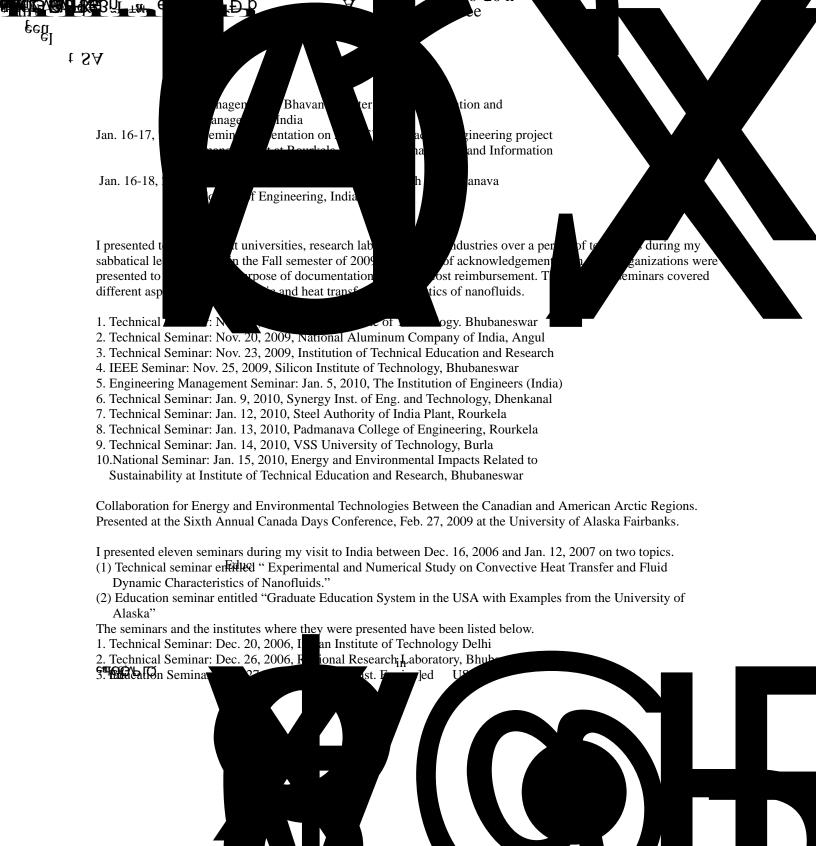
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Cold Region Heat Transfer Studies for Gas-to-Liquids

Performance of Fix Kits to Eliminate Icing Problems on Large-scale Gas-fired Heaters, June 21, 1993, Rheem Manufacturing Co., Fort Smith, Arkansas.

Cold Weather Testing of Rheem Gas-Fired Outdoor Heaters, June 5, 1992, Rheem Manufacturing Company, Ft. Smith, Arkansas.

A Finite Element Method for Modeling Heat Transfer During Ice Goring Operations, April 10, 1992, Polar s

Reviewed a paper for International Journal of Heat and Mass Transfer, July 2013

Reviewed two proposals each worth slightly more than \$1M for Qatar National Research Fund under their National Priorities

i

Reviewed a paper for ASME Heat Transfer Division, April 2003.

Reviewed sixteen abstracts for the 53rd Arctic Science Conference, 2002

Reviewed a proposal for Specific Research Grant of Idaho Board of Education, 1998.

Reviewed a paper for AIAA journal, 1997.

Reviewed three papers for ASCE Eighth International. Conf. on Cold Regions Engineering, 1996.

Reviewed thirteen abstracts for the 46th Arctic Science Conference, 1995

Reviewed a paper for the International Journal of Heat & Mass Transfer, 1994.

Reviewed a paper for the ASME Heat Transfer Division, 1994.

Reviewed three papers for ASME Journal of Fluids Engineering; 1989, 1993, 1994.

Reviewed a paper for ASME Fluids Engineering Division Conf. on Turbulent Boundary Layers, 1993.

Reviewed a paper for Fourth International. Symp. on Thermal Eng. and Science for Cold Regions, 1993.

Reviewed a paper for the Permafrost Conference, 1993.

Reviewed many proposals for Graduate Resource Fellowship, 1991-1993.

Reviewed three papers for Third International Symposium on Cold Regions Heat Transfer, 1991.

Reviewed a proposal for Faculty Small Grant, 1990.

Reviewed two papers for The Northern Engineer, 1989 - 90.

#### **CONFERENCES**

Chair, ASME Graduate Student Technical Conference for Dist. D at California Maritime Academy in March 23-24 and Central Washington University in April 20-21, 2011.

Chair, ASME Graduate Student Technical Conference for Dist. D at University of Nevada, Las Vegas in April 2010.

Chair, ASME Graduate Student Technical Conference for Dist. D at San Jose State University and Washington State University in April 4 and 18, 2009.

- Chair, Session on Northern Engineering, 2008 Arctic Science Conference of the AAAS, September 2008.
- Chair & Coordinator: ASME Graduate Student Technical Conference, Old Region VIII and District D, 2001-2008
- Chair, Session on Cold Regions Engineering, 54th Arctic Science Conference of the AAAS, September 2003.
- Co-chair, Session on Cold Regions Engineering, 53rd Arctic Science Conference of the AAAS, September 2002.

Chair, Session on Cold Regions Engineering, 46th Arctic Science Conference of the

AAAS, September 1995.

- Co-chair, Session on Properties and Behavior of Freezing Soils, Third International Symposium on Cold Regions Heat Transfer, June 1991.
- Co-chair, Technical Session on Northern Engineering, 40th Arctic Science Conference of the AAAS, September 1989.

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AT NATIONAL LEVEL

American Society of Mechanical Engineers, Dist. D, Operating Board Member, 2006-2012.

American Society of Mechanical Engineers, Region VIII (Dist. D), SSC Senior

		B
	SOE Representative to Chancellor's Graduate Fellowship Committee; November 1991 to November 1993.	
n	SOE Peer Committee for Tenure and Promotion review. Wrote the summary of reviews at times for candidates on behalf of the committee; 1991 to 1995.	
	SOE Sabbatical Leave Review Committee, September 1995 to 1999	
	ASME Faculty Advisor to the UAF Student Chapter, May 1988 through May 1990 and May 1995 to 2009.	
	Meritorious Incentive Awards Committee, October and November, 1988. Lagran i Lagran i Mindes of/Engineering Representative enthe University Assembly, April 1985 through April 1987.	I' Roeseptat
	₣ <b>©</b> Member of the Assembly Budget Committee, April 1985 through April 1987.	
	Member, ME Department Graduate Admissions Committee, September 1985 – 2001 & May 2004 - 2006.	
	IN COMMUNITY	
	Board Member, Fairbanks Community and Behavioral Health Center, Feb 2009- 2013	
	Board Member-at-Large and Treasurer, National Alliance on Mental Illness, Fairbanks Chapter: Treasurer (2007-08), Member at Large 2008-12.	
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Mechanical design experience included stress analysis of vessels and structures due to seismic and wind loads, flow induced vibration, and preparation of technical reports to meet the American Society of Mechanical Engineering (ASME) code requirements. Developed and modified several computer programs and used general-purpose programs offered by AAA Technology, and University Computing Company. Complete familiarity with ASME codes Sec. 1, III, VIII; AISC, TEMA, and API. As project engineer, supervised the progress of projects outlined above for production scheduling, manufacturing, quality assurance, and reviewed the financial status periodically for on-time and profitable completion of the projects.

A representative list of some units designed by me and constructed under my supervision at Tower Iron Works follows.