

Kerry K. Kuehn

Kerry Kuehn, Ph.D.
Professor of Physics

Dept. of Physics
[Wisconsin Lutheran College](http://www.wisconsinlutheran.edu)
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Recent Employment

Professor, Department of Physics, Wisconsin Lutheran College (2001 - present).

Visiting Adjunct Professor, Concordia University (Spring, 2014)

Visiting researcher, medical device technology, Minnetronix, Inc. (2004).

Education

Ph.D., Department of Physics, University of California, Santa Barbara, CA (2001). Dissertation: "[Experimental studies of the breakdown of super-fluidity in helium-four near the lambda line.](#)"

B.S., Department of Applied and Engineering Physics, Cornell University, Ithaca, NY (1994).

Background

My academic interests are primarily in the physics of fluids and in the history and philosophy of science. Recently, I have been published a textbook and scientific anthology entitled *A Student's Guide through the Great Physics Texts*. Information on these (and other) projects can be found at my personal website www.kerrykuehn.com.

Professional organizations and activities

American Physical Society, member (1995-present)

Group on statistical and nonlinear physics

Forum on industrial and applied physics

Division of fluid dynamics

Forum on physics and society

NASA Wisconsin Space Grant Consortium, Advisory Council member (2003-present)

Fidelitas (WLC Honors Program), Advisory Council member (2010-present)

Peer reviewer for the *Journal of Fluid Mechanics* (2011-present)

Books and refereed publications

Kerry K. Kuehn, *A Student's Guide through the Great Physics Texts, Volume I: The Heavens and the Earth and Volume II: Space, Time and Motion*. (New York: Springer, 2015).

Kerry K. Kuehn, *A Student's Guide through the Great Physics Texts, Volume III: Electricity, Magnetism and Light and Volume IV: Heat, Atoms and Quanta*. (New York: Springer, 2016).

K. Kuehn, M. Moeller, M. Schulz and D. Sanfelippo, "Vortex ring refraction at high Froude numbers," *Phys. Rev. E* 82, 016312 (2010). [doi:10.1103/PhysRevE.82.016312](https://doi.org/10.1103/PhysRevE.82.016312).

K. Kuehn, J. Polfer, N. Finke and J. Furno, "Apparatus for real-time acoustic imaging of Rayleigh-Bénard convection," *Rev. Sci. Instrum.* 78, 113704 (2007). [doi:10.1063/1.2804133](https://doi.org/10.1063/1.2804133)

J. Furno and K. Kuehn, "Tidal pattern instabilities on multi-moon planets", *Icarus*, 189, 246 (2007). [doi:10.1016/j.icarus.2007.01.007](https://doi.org/10.1016/j.icarus.2007.01.007)

K. Kuehn, S. Mehta, H. Fu, E. Genio, D. Murphy, F. Liu, Y. Liu, G. Ahlers, "Singularity in the Thermal Boundary Resistance between Superfluid 4He and a Solid Surface," *Phys. Rev. Lett.*, 88, 095702 (2002). [doi:10.1103/PhysRevLett.88.095702](https://doi.org/10.1103/PhysRevLett.88.095702).

K. Kuehn and G. Ahlers, "Mutual Friction in Superfluid 4He near the lambda-line", *J. Low Temp. Phys.*, 126, 1515 (2002). [doi:10.1023/A:1014247500834](https://doi.org/10.1023/A:1014247500834).

H. Baddar, G. Ahlers, K. Kuehn, H. Fu, "Thermal Resistance of 4He Below but Very Near the Superfluid Transition," *J. Low Temp. Phys.*, 119, 1 (2000). [doi:10.1023/A:1004683717235](https://doi.org/10.1023/A:1004683717235).

H. Fu, H. Baddar, K. Kuehn, M. Larson, N. Mulders, A. Schegolev, and G. Ahlers, "A High-Resolution Thermometer for the Range 1.6 to 5K," *J. Low Temp. Phys.*, 111, 49 (1998). [doi:10.1023/A:1022246124415](https://doi.org/10.1023/A:1022246124415).

H. Fu, H. Baddar, K. Kuehn and G. Ahlers, "The Boundary Resistance Between Superfluid He Near T-lambda and a Solid Surface," *Fizika Nizkikh Temperatur*, 24, 101 (1998) [*Low Temp. Phys.* 24, 69 (1998)]. [doi:10.1063/1.593539](https://doi.org/10.1063/1.593539).

Conference Proceedings and other publications

K. Kuehn "Observation, Understanding and Belief: guiding students through the great texts of physics and astronomy," American Physical Society, Annual March Meeting, March 5, 2014, Denver, CO, [abstract #M3.00002](#).

K. Kuehn, "Observation, Understanding and Belief: a student's guide through the great physics texts" Proceedings of the 19th Annual Wisconsin Space Conference, August 13-14, 2009, Milwaukee School of Engineering, Milwaukee, WI.

K. Kuehn "Physics: A student's guide through the great texts," American Physical Society, Annual March Meeting, February 29, 2012, Boston, MA, [abstract #T37.00007](#).

K. Kuehn, M. Moeller, M. Schultz, D. Sanfelippo "Vortex ring refraction at large Froude numbers," American Physical Society, Annual March Meeting, March 16, 2010, Portland, OR, [abstract #L42.00006](#).

K. Kuehn, "Reflection and refraction of vortex rings," Proceedings of the 19th Annual Wisconsin Space Conference, August 13-14, 2009, Milwaukee School of Engineering, Milwaukee, WI.

K. Kuehn, "Closer than you might think: natural science and theology," Proceedings of the Sciences in Perspective Conference, Sep. 5-6, 2008, Country Springs Hotel, Pewaukee, WI.

K. Kuehn, J. Polfer and J. Furno, "Apparatus for Real-Time Acoustic Imaging of Rayleigh-Bénard Convection," American Physical Society, Annual March Meeting, March 5-9, 2007, Denver, CO, [abstract #W30.002](#).

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K. Kuehn, "Continuous Level Detector Progress Report," Internal document prepared for Minnetronix, Inc. (2004).

K. Kuehn, S. Mehta, H. Fu, E. Genio, D. Murphy, F.C. Liu, Y.M. Liu, G. Ahlers, "Singularity in the boundary resistance between superfluid 4He and a solid surface", American Physical Society, Annual March Meeting, March 18-22, 2002, Indianapolis, IN, [abstract #L26.003](#).

G. Ahlers, P. Finley, E. Genio, K. Kuehn, F.C. Liu, Y.M. Liu, D. Murphy, "Boundary Effects near the Superfluid Transition (BEST), and experiment Proposed for the ISS", AIP Conference Proceedings, Vol. 504, 2000, p.662.

K. Kuehn and G. Ahlers, "Thermal Resistance in Superfluid 4He Near the Lambda Line," American Physical Society, Annual March Meeting, March 20-24, 2000 Minneapolis, MN, [abstract #E30.005](#).

E. Genio, K. Kuehn, G. Ahlers, F.C. Liu, Y.M. Liu, "Thermal Conductivity Measurements in Confined Liquid 4He near the lambda point," American Physical Society, Annual March Meeting, March 20-24, 2000, Minneapolis, MN, [abstract #E30.004](#).

G. Ahlers and K. Kuehn, "Finite Current Effects on the Thermal Resistance of Liquid 4He Close to the Superfluid Transition at $T_c(Q)$," American Physical Society, Annual March Meeting, March 20-24, 2000, Minneapolis, MN, [abstract #E30.003](#).

K. Kuehn, "Mutual Friction Very Close to the Superfluid Transition," Proceedings of the 1999 NASA/JPL Micro-gravity Fundamental Physics Workshop, Apr. 29-May 1, 1999, Washington, DC.

H. Fu, H. Baddar, K. Kuehn and G. Ahlers, "Thermal Boundary Resistance and its Critical Behavior near the Superfluid Transition of 4He," American Physical Society March Meeting, March 17-21, 1997, [abstract #J15.08](#).

Grants and awards

"Fluid flow in spinning bubbles," Wisconsin Lutheran College, Faculty Mini-grant (2016).

"Physics: A student's guide through the great texts," NASA Wisconsin Space Grant Consortium, Higher Education Program grant (2012).

"Physics: A student's guide through the great texts," Wisconsin Lutheran College, Faculty Mini-grant (2012, renewed 2013).

Frank G. Brewer Civil Air Patrol Memorial Aerospace Award, "For outstanding contributions, out of selfless devotion, to the advancement of youth in aerospace activities." (May 2011).

"Experimental study of the oblique incidence of a vortex ring on a fluid density interface," NASA Wisconsin Space Grant Consortium, Research Infrastructure grant. (2008).

"Sciences in Perspective: a conference exploring the relationship between the natural sciences, the social sciences and the humanities," Wisconsin Lutheran College, Faculty Mini-grant (2007).

"MRI: Apparatus for High Resolution Real-Time Acoustic Imaging of Rayleigh-Bénard Convection in Liquid Mercury," National Science Foundation, Major Research Instrumentation grant (2004).

"Apparatus for High Resolution Real-Time Acoustic Imaging of Rayleigh-Bénard Convection in Liquid Mercury," U.S. Dept. of Energy, Division of Materials Research grant (2004).

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“Feasibility Study for the Design of an Apparatus for High-Resolution Ultrasonic Imaging of Rayleigh-Bénard Convection in Liquid Mercury,” Wisconsin Lutheran College Faculty Mini-grant (2003).

Invited and contributed lectures

“Guiding students through the great physics texts,” Association of Lutheran College Faculty, Concordia University of Wisconsin, October 1, 2016, Mequon, WI.

“Observation, Understanding and Belief: a student’s guide through the great physics texts,” *Lutheran College Conference, Wisconsin Lutheran College*, August 11, 2014, Milwaukee, WI.

“Observation, Understanding and Belief: a student’s guide through the great physics texts,” *Keynote speech, Undergraduate Research Symposium, Wisconsin Lutheran College*, April 26, 2014, Milwaukee, WI.

“Observation, Understanding and Belief: guiding students through the great texts of physics and astronomy,” *American Physical Society, Annual March Meeting*, March 5, 2014, Denver, CO.

“A student’s guide through the great physics texts,” *Board of Regents Meeting, Wisconsin Lutheran College*, February 11, 2014, Milwaukee, WI.

“Winter, as you know, is a dark time.” *December Commencement Address, Wisconsin Lutheran College*, December 12, 2013, Milwaukee, WI.

“Physics: A student’s guide through the great texts,” *23rd Annual Wisconsin Space Conference*, Milwaukee School of Engineering, Aug. 16, 2013, Milwaukee, WI.

“Physics: A student’s guide through the great texts,” *American Physical Society, Annual March Meeting*, February 29, 2012, Boston, MA.

“Vortex rings: in nature, in theory and in the laboratory.” *Aerospace Education Excellence Program lecture*, Civil Air Patrol, Lawrence J. Timmerman Hangar, May 2, 2011, Milwaukee, WI.

“Vortex ring refraction at large Froude numbers,” *American Physical Society 63rd Annual Meeting of the Division of Fluid Dynamics*, November 21-23, 2010, Long Beach, CA.

“Vortex ring refraction at large Froude numbers,” *American Physical Society, Annual March Meeting*, March 16, 2010, Portland, OR.

“Reflection and Refraction of Vortex Rings,” *19th Annual Wisconsin Space Conference*, Milwaukee School of Engineering, Aug. 13, 2009, Milwaukee, WI.

“Copernicus, Kepler and Galileo.” *Aerospace Education Excellence Program lecture*, Civil Air Patrol, Lawrence J. Timmerman Hangar, Sep. 21, 2009, Milwaukee, WI.

“How Deep are the Heavens?” *Aerospace Education Excellence Program lecture*, Civil Air Patrol, Lawrence J. Timmerman Hangar, June 23, 2009, Milwaukee, WI.

“Closer than you might think: natural science and theology,” *Proceedings of the Sciences in Perspective Conference*, Sep. 5-6, 2008, Country Springs Hotel, Pewaukee, WI.

“Apparatus for Real-Time Acoustic Imaging of Rayleigh-Bénard Convection,” *American Physical Society, Annual March Meeting*, March 5-9, 2007, Denver, CO.

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“Pattern Formation in Nature,” *Keynote address at the Sixth Annual Undergraduate Research Symposium*, Wisconsin Lutheran College, May 2006, Milwaukee, WI.

“Real-time acoustic imaging of Rayleigh-Bénard Convection in Liquid Mercury,” *Physics Colloquium*, Marquette University, Feb. 2006, Milwaukee, WI.

Panelist, “Great Books” pedagogical techniques, Wisconsin Lutheran College Faculty In-Service, Milwaukee, WI (Jan. 2005).

“Real-time acoustic imaging of Rayleigh-Bénard Convection in Liquid Mercury,” *Engineering Colloquium*, Marquette University, Sep. 2004, Milwaukee, WI.

“Apparatus for High Resolution Real-Time Acoustic Imaging of Rayleigh-Bénard Convection in Liquid Mercury,” *Faculty Brown Bag Lunch Seminar*, Wisconsin Lutheran College, Feb. 2004, Milwaukee, WI.

“Thermal Resistance in Superfluid ^4He Near the Lambda Line,” American Physical Society, Annual March Meeting, March 20-24, 2000 Minneapolis, MN.

“Thermal resistance of He II near the superfluid transition,” *NASA/JPL Microgravity Fundamental Physics Workshop*, Apr. 29-May 1, 1999, Washington, DC.

Conferences attended

“Beyond the Horizon,” 26th Annual Wisconsin Space Conference, UW Superior, August 11, 2016, Superior, WI.

“Innovations in Flight,” 25th Annual Wisconsin Space Conference, EAA Airventure Museum, Aug. 14-15, 2015, Oshkosh, WI.

“Commercialization of Space,” 24th Annual Wisconsin Space Conference, Promega Corporation, Aug. 15, 2014, Madison, WI.

“Teaching through a Lutheran Lens,” Lutheran College Conference, Wisconsin Lutheran College, Aug. 10-12, 2014, Milwaukee, WI.

American Physical Society, Annual March Meeting, March 5-8, 2014, Denver, CO.

“Global Climate Change Impacts on Lake Michigan,” 23rd Annual Wisconsin Space Conference, Marquette University, Aug. 16-17, 2012, Milwaukee, WI.

“Evolutionary theory: Implications for Science and Christian Belief”, Mar. 28, 2012, Wheaton College Science Symposium, Wheaton, IL.

“From Earth to Galaxy,” 22nd Annual Wisconsin Space Conference, UW Whitewater, Aug. 19-20, 2012, Whitewater, WI.

American Physical Society, Annual March Meeting, Feb. 27-29, 2012, Boston, MA.

“Seeing Farther from Space,” 21st Annual Wisconsin Space Conference, UW-La Crosse, Aug. 18-19, 2011, La Crosse, WI.

63rd Annual Meeting of the APS Division of Fluid Dynamics, Nov. 21-23, 2010, Long Beach, CA.

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“Dawn of a New Age,” 20th Annual Wisconsin Space Conference, UW-Sheboygan, Aug. 19-20, 2010, Sheboygan, WI.

American Physical Society, Annual March Meeting, Mar. 15-19, 2010, Portland, OR.

The Cassini Encounter with the Gem of the Solar System,” 19th Annual Wisconsin Space Conference, Milwaukee School of Engineering, Aug. 13-14, 2009, Milwaukee, WI.

“Sciences in Perspective Conference,” Wisconsin Lutheran College, Country Springs Hotel, Sep. 5-6, 2008, Pewaukee, WI.

“The Hubble and Beyond,” 18th Annual Wisconsin Space Conference, UW-Fox Valley, Aug. 14-15, 2008, Menasha, WI.

“Internationalization of Space,” 17th Annual Wisconsin Space Conference, UW-Superior, Aug. 16-17, 2007, Superior, WI.

American Physical Society, Annual March Meeting, Mar. 5-9, 2007, Denver, CO.

“Unlocking the Origin of the Solar System,” 16th Annual Wisconsin Space Conference, Marquette University, Aug. 10-11, 2006, Milwaukee, WI.

“Continuing the Voyage of Discovery,” 15th Annual Wisconsin Space Conference, BioPharmaceutical Technology Institute, Aug. 18-19, 2005, Madison, WI.

“Women in Space: Mars Exploration,” 14th Annual Wisconsin Space Conference, UW-LaCrosse, Aug. 19-20, 2004, LaCrosse, WI.

American Physical Society, Annual March Meeting, March 3-7, 2004, Austin, TX.

“Space Ventures & Our Changing Earth,” 13th Annual Wisconsin Space Conference, UW-Green Bay, Aug. 14-15, 2003, Green Bay, WI.

Lutheran College Conference, Wisconsin Lutheran College, Aug. 10-12, 2003, Milwaukee, WI.

National Conference on Worship, Music and the Arts, Jul. 21-24, 2002, Carthage College, Kenosha, WI.

American Physical Society, Annual March Meeting, Mar. 20-24, 2000, Minneapolis, MN.

NASA/JPL Micro-gravity Fundamental Physics Workshop, Apr. 29-May 1, 1999, Washington, D.C.

Curriculum development and teaching activities

PHY 101: The heavens and the earth

PHY 201: Space, time and motion

PHY 202: Electricity, magnetism and light

PHY 203: Atoms, nuclei and matter

PHY 211: Computerized instrumentation and design

PHY 301: Classical mechanics

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PHY 302: Classical electrodynamics

PHY 303: Thermodynamics

PHY 304: Quantum mechanics

PHY 314: Quantum mechanics laboratory

PHY 315: Electronics Laboratory

PHY 401: Statistical Mechanics

HON 401: Honors capstone thesis development

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Undergraduate research projects and advisees

Ethan Jahns (2012-present), Cody Morse (2012-present), Jessica Lembke (2012-present), Jonas Gertsch (2010-2012), Timothy Kriewall (2010-present), Dylan Applin (2012), Stephanie Kriewall (2012), Zachary Brandt (2012), Jaymee Martin-Schnell (2010-2012), Caitlin Ristow (2010-2011), Matthew Moeller (2008-2009), Michael Schulz (2006-2008), Daniel Sanfelippo (2006-2007), Jonathan Polfer (2004-2007), Joanna Furno (2005-2007), Nathan Finke (2005), Michael Poston (2001-2004)

Collegiate committees and service

Rank and Promotion Committee (Aug. 2015-present)

Program Prioritization Task Force (Aug. 2014-2016)

Mathematics Faculty search committee (Sep. 2013-2014)

Chemistry and Physics Faculty search committee, (Aug. 2011-2012)

Summer Reading Program Discussion Leader (Aug. 2010, 2009, 2007)

Assessment Committee (Apr. 2008 - July 2010, secretary).

Chair, Dept. of Physical Sciences (Jul. 2006 - Jul. 2008).

Chair, Summer Reading Committee (Nov. 2006 - Feb. 2008).

General Education Committee (Sep. 2005 - Aug. 2006).

Curriculum Committee (Jul. 2002 - Jul. 2006, Chair 2005-2006).

Science Club Faculty Advisor (Jul. 2001 - present).

Science Building Committee (Jan. 2002 - Jul. 2004).

Community service and press appearances

Board of Education, St. John's Ev. Lutheran Church, Wauwatosa, WI (beginning in January 2018)

Board of Elders, St. John's Ev. Lutheran Church, Wauwatosa, WI (2012-present, Chair 2014-present)

Matins Worship Service Leader, Wisconsin Lutheran College (Jan. 2004 - present).

Altar Assistant, St. John's Ev. Lutheran Church, Wauwatosa, WI (2003 - present).

Usher, St. John's Ev. Lutheran Church, Wauwatosa, WI (2002 - present).

Board of Discipleship, St. John's Ev. Lutheran Church, Wauwatosa, WI (Jan. 2008 - present)

Cornell Club of Wisconsin (2003-present).

Accreditation Committee, St. John's Ev. Lutheran School, Wauwatosa, WI (2007-2008).

Southeast Wisconsin District Convention Delegate, Wisconsin Lutheran Seminary, Mequon, WI (Jun. 6 & 7, 2006; Jun. 11 & 12, 2002).

Board of Outreach, St. John's Ev. Lutheran Church, Wauwatosa, WI (Jan. 2002 - Dec. 2005)

Jacobus Park Neighborhood Association, Wauwatosa, WI (2003-present).

"Eliminate office and patent law." Milwaukee Journal Sentinel Feb. 4 2011: Opinion letters.

"Health plan more like a Sunday drive." Milwaukee Journal Sentinel Sep. 9 2007: D2.

Matthew Hrodey, "Learning Curve. Students aren't just learning from professors, but helping them, too."
Milwaukee Magazine Aug. 2007: 94.

Public Science Lectures, Good Shepherd Ev. Lutheran Church, 2005, 2004 and 2003, West Allis, WI.

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