JACOPO BUONGIORNO
TEPCO Professor, Nuclear Science and Engineering Department
Director, Center for Advanced Nuclear Energy Systems (CANES)
Director, Science and Technology, Nuclear Reactor Laboratory (NRL)

Email: jacopo@mit.edu
Phone: 617-253-7316
Fax: 617-258-8863

MIT Department of Nuclear Science and Engineering
77 Massachusetts Avenue, 24-206
Cambridge, MA 02139-4307
USA

Contents

Papers in Refereed Journals

[1] *G. Su, F.P. D'Aleo, B. Phillips, R. Streich, E. Al-Safran, J. Buongiorno, H.M. Prasser, "On the oscillatory nature of heat transfer in steady annular flow", submitted to *Int. Comm. Heat Mass Transfer*, 2019.

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Proceedings of Peer-reviewed Conferences

FULL PAPERS

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PAPER SUMMARIES

[1] W. R. Stewart, J. Buongiorno, K. Shirvan, "Establishing the Requirements for Japan's Future Nuclear Energy Systems", *ANS Winter Meeting*, Nov 17-21, Washington DC, 2019.
[2] G. Su*, F. P. D'Aleo, B. Phillips, E. Al-Safran, J. Buongiorno, H.-M. Prasser, "Advanced Imaging of Vertical Upward Annular Two-Phase Flow during Onset and Suppression of Nucleate Boiling", *10th International Conference on Boiling and Condensation Heat Transfer*, March 12-15, 2018, Nagasaki, Japan.
[3] M. M. Rahman, A. Kossolapov, J. H. Seong, J. Buongiorno, M. Bucci, "Investigation of Pool Boiling Heat Transfer and CHF Enhancement on Nano-Engineered Surfaces Using Advanced Diagnostics", *10th International Conference on Boiling and Condensation Heat Transfer*, March 12-15, 2018, Nagasaki, Japan.
[4] M. M. Rahman, C. Wang, Y. Song, G. Saccone, E. Wang, M. Bucci, J. Buongiorno, "Role of Micro-Engineered Pillar Height on Coupled Surface Wickability and Pool Boiling CHF", *15th International Conference on Nanochannels, Microchannels, and Minichannels (ICNMM-2017)*, August 27-31, 2017, Cambridge, MA. (ABSTRACT)
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[6] *A. Richenderfer, A. Kossolapov, J. H. Seong, T. McKrell, M. Bucci, J. Buongiorno, "Investigation of Subcooled Flow Boiling and CHF Using High-Resolution Diagnostics", *9th World Conference on Experimental Heat Transfer, Fluid Mechanics and Thermodynamics*, Iguazu Falls, Brazil, 12-15 June, 2017. (ABSTRACT)
[7] G. Saccone, P. Di Marco, M. Bucci, J. L. Moran, J. Buongiorno, "Critical Heat Flux Enhancement in Presence of Microstructured Surfaces and Electric Field", *9th World Conference on Experimental Heat Transfer, Fluid Mechanics and Thermodynamics*, Iguazu Falls, Brazil, 12-15 June, 2017. (ABSTRACT)
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[9] *A. Richenderfer, A. Kossolapov, M. Bucci, T. McKrell, J. Buongiorno, "New diagnostics and post-processing techniques capture subcooled flow boiling CHF", *Application of CFD/CMFD Codes to Nuclear Reactor Safety and Design and their Experimental Validation (CFD4NRS-6)*, Boston, September 13-15, 2016. (ABSTRACT)

[10] *A. Guion, J. Buongiorno, S. Zaleski, S. Afkhami, C. Narayanan, "Numerical simulation of nucleate boiling using dynamic models of microlayer formation and evaporation, and its validation with pool boiling data", *Application of CFD/CMFD Codes to Nuclear Reactor Safety and Design and their Experimental Validation (CFD4NRS-6)*, Boston, September 13-15, 2016. (ABSTRACT)

[118] *G. Su, M. Bucci, J. Buongiorno, T. J. McKrell, "High Resolution Measurements Reveal Transient Boiling Phenomena under Exponential Heat Inputs", *Proc. 2016 ANS Winter Meeting*, Las Vegas NV, Nov. 6-10, 2016.

[119] *J. Jurewicz, J. Buongiorno, M. Golay, N. Todreas, F. Major, O. Skjastad, "Construction and Transportation of the Offshore Floating Nuclear Plant (OFNP)", *3rd Conference on Technological Innovations in Nuclear Civil Engineering (TINCE-2016)*, Paris (France), September 5-9, 2016 (ABSTRACT)

[11] R. Azizian, T. McKrell, M. Bucci, K. Atkhen, J. Buongiorno, "Effect of Pressure Vessel Surface Oxidation and Water Chemistry on IVR CHF", *International Workshop on In-Vessel Corium Retention Strategy: Status of Knowledge and Perspectives*, June 6-7, 2016**,** Aix en Provence, France**.**

[12] *E. Lizarraga-Garcia, J. Buongiorno, E. Al-Safran, D. Lakehal, "CFD-informed unified closure relation for the rise velocity of Taylor bubbles in pipes with liquid flow" *ICMF 2016 International Conference on Multiphase Flow*, Firenze, Italy, May 22 - 27, 2016

[13] *A. Guion, J. Buongiorno, S. Zaleski, S. Afkhami, "Numerical simulation of microlayer formation during the inertia-controlled growth phase of bubbles in nucleate boiling" *ICMF 2016 International Conference on Multiphase Flow*, Firenze, Italy, May 22 - 27, 2016

[14] *G. Su, M. Bucci, J. Buongiorno, T. J. McKrell, "Experimental study of transient flow boiling heat transfer under exponentially escalating heat inputs*", ICMF 2016 International Conference on Multiphase Flow*, Firenze, Italy, May 22 - 27, 2016

[15] A. Richenderfer, M. Bucci, T. McKrell, J. Buongiorno, "Simultaneous Measurement of Temperature, Fluid Phase and Heat Flux on a Boing Surface", *ICMF 2016 International Conference on Multiphase Flow*, Firenze, Italy, May 22 - 27, 2016

[16] *C. Coyle, J. Buongiorno, T. McKrell, R. Cohen, M. Rubner, "Synthesis of CRUD and its Effects on Pool and Subcooled Flow Boiling", *ICMF 2016 International Conference on Multiphase Flow*, Firenze, Italy, May 22 - 27, 2016

[17] *E. Lizarraga-Garcia, J. Buongiorno, E. Al-Safran, D. Lakehal, "CFD-informed unified closure relation for the rise velocity of Taylor bubbles in pipes", *68th Annual Meeting of the APS Division of Fluid Dynamics*, November 22-24, 2015, Boston.

[18] *Guanyu Su, Matteo Bucci, Thomas McKrell and Jacopo Buongiorno, "Experimental study of boiling inception under exponentially escalating heat flux", *9th International Conference on Boiling and Condensation Heat Transfer*, April 26-30, 2015, Boulder, Colorado

[19] *M. Tetreault-Friend, J. Buongiorno, T. McKrell, M. Rubner, R. Cohen, "Parametric study of the effect of hydrophilic porosity on critical heat flux", *9th International Conference on Boiling and Condensation Heat Transfer*, April 26-30, 2015, Boulder, Colorado

[20] R. Azizian, T. McKrell, J. Buongiorno, "Flow boiling critical heat flux enhancement on superhydrophilic, porous, air-oxidized steel surfaces", *9th International Conference on Boiling and Condensation Heat Transfer*, April 26-30, 2015, Boulder, Colorado.

[21] *Andrew Richenderfer, Matteo Bucci, Thomas McKrell and Jacopo Buongiorno, "Development of Multi-Spectral infrared Thermography for simultaneous measurement of phase and temperature on the boiling surface", *9th International Conference on Boiling and Condensation Heat Transfer*, April 26-30, 2015, Boulder, Colorado.

[22] *J. Jurewicz, J. Buongiorno, M. Golay, N. Todreas, "Offshore Floating Nuclear Plant (OFNP) with Spar-Type Platform Design", *Proc. 2014 ANS Winter Meeting*, Anaheim CA, Nov. 9-13, 2014.

[23] *A. Briccetti, J. Buongiorno, M. Golay, N. Todreas, "Where to Site an Offshore Floating Nuclear Power Plant", Technical Presentation, *Proc. 22nd Int. Conf. Nuclear Eng. (ICONE-22)*, Prague, July 7-11, 2014.

[24] R. Azizian, E. Doroodchi, T. McKrell, L-W. Hu, J. Buongiorno, B. Moghtaderi, "An Examination of the Impact of Magnetic Field on the Convective Heat Transfer in Tuneable Nanofluids", Nanotech 2013 Conference and Expo, Washington DC, May 12-16.

[25] *E.A. Bates, J. Buongiorno, E. Baglietto, M.J. Driscoll, "Transient Thermal Modeling of a Deep Borehole Repository", *Proc. 2012 Annual Meeting of the ANS*, June 24-28, Chicago, IL, 2012.

[26] *G. Dewitt, R. J. Park, J. Buongiorno, T. McKrell, L. W. Hu, "Investigation of Downward Facing Critical Heat Flux with Water-based Nanofluids for In-Vessel Retention Applications", *Proc. 2011 Annual Meeting of the ANS*, June 26-30, Hollywood, FL, 2011.

[27] *J. Yurko, J. Buongiorno, "Quantified Phenomena Identification and Ranking Table (QPIRT) for Reactor Safety Analysis", *Proc. 2011 Annual Meeting of the ANS*, June 26-30, Hollywood, FL, 2011.

[28] J. Buongiorno, G. Tryggvason, D. Lakehal, "Highly-Resolved Boiling Data for Validation of High-Fidelity Boiling Models and Simulations", *Verification and Validation for Nuclear Systems Analysis Workshop II*, North Myrtle Beach, SC, May 24-28, 2010.

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[31] *A. Karahan, J. Buongiorno, M. S. Kazimi, "Development of a New Irradiation Performance Code for Metal Fuels", *Nuclear Fuels and Structural Materials for the Next Generation Nuclear Reactors (NFSM)*, embedded topical meeting at the Annual Meeting of the American Nuclear Society, Anaheim, California, June 8-12, 2008.

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[40] J. Buongiorno, "Temperature Limits for Heavy-Liquid-Metal Reactor Vessels", *Trans. Am. Nuc. Soc.*, vol.85, pp.45-46, 2001.
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Invited Lectures

[1] The Future of Nuclear Energy in a Carbon-Constrained World - Findings from a new MIT study", Nuclear Safety Course, MIT, June 17, 2019.
[2] "Nuclear energy – a new beginning? Findings form a Recent MIT Study", Plant Modernization Workshop, EPRI, Charlotte, June 12, 2019.
[3] "Nuclear energy – a new beginning?", Applied Energy Conf, MIT May 22, 2019
[4] "Advanced Nuclear technologies in the U.S.", Keynote at ICAPP 2019, Juan les Pins, France, May 12-15, 2019.
[5] "The Future of Nuclear Energy in a Carbon-Constrained World - Findings from a new MIT study", Keynote at ICAPP 2019, Juan les Pins, France, May 12-15, 2019.
[6] "The Future of Nuclear Energy in a Carbon-Constrained World - Findings from a new MIT study", PPPL, Princeton, NJ, May 8, 2019
[7] "Nuclear energy – a new beginning", Senior Congressional Staff Seminar on Energy Options and Economic Opportunities for Decarbonization, MIT, April 24, 2019.
[8] "The Future of Nuclear Energy in a Carbon-Constrained World - Findings from a new MIT study", Conservation Law Foundation, Boston, April , 2019.
[9] "The Future of Nuclear Energy in a Carbon-Constrained World - Findings from a new MIT study", webinar of the European Nuclear Society, March 29, 2019.
[10] "The Future of Nuclear Energy in a Carbon-Constrained World - Findings from a new MIT study", Colorado School of Mines, Denver, March 6, 2019.
[11] "The Future of Nuclear Energy in a Carbon-Constrained World - Findings from a new MIT study", Swiss Nuclear Society, Zurich, February 12, 2019.
[12] "The Future of Nuclear Energy in a Carbon-Constrained World - Findings from a new MIT study", Poland Ministry of Energy, Warsaw, 22 January, 2019.
[13] "The Future of Nuclear Energy in a Carbon-Constrained World - Findings from a new MIT study", AGH Univ Science Cracow, 21 January, 2019.

[14] "What are the key challenges for nuclear and how to address them - Findings from a new MIT study", 2019 Energiforsk Nuclear Annual Conference on Flexible Nuclear Power and Ancillary Services, Stockholm, 23-24 January, 2019.
[15] "The Future of Nuclear Energy in a Carbon-Constrained World", Beijing, China, January 15, 2019.
[16] "What role for nuclear energy in a carbon-constrained world?", MIT-Seoul National University Symposium on the Future of Nuclear Energy in a Carbon Constrained World, Korean Press Center, Seoul, January 14, 2019.
[17] "The Future of Nuclear Energy in a Carbon-Constrained World - Findings from a New MIT study", Foro Nuclear, Madrid, November 20, 2018.
[18] "Can Nuclear Energy Thrive in a Carbon-Constrained World? Findings from a new MIT study", First strategic seminar of the Board of Directors, ORANO, Paris, November 19, 2018.
[19] "The Future of Nuclear Energy in a Carbon-Constrained World - Findings from a New MIT study", Lincoln Labs, MIT, November 13, 2018.
[20] "Can Nuclear Energy Thrive in a Carbon-Constrained World? Findings from a new MIT study", 1st Generation-IV and Small Modular Reactors Conference (G4SR-1), Ottawa, November 8, 2018.
[21] "The Future of Nuclear Energy in a Carbon-Constrained World - Findings from a New MIT study", Presentation to delegation of Total S.A., MIT, November 7, 2018.
[22] "Protect the Present to Prepare the Future", INPO Annual CEO conference, November 6, 2018.
[23] "The Future of Nuclear Energy in a Carbon-Constrained World - Findings from a New MIT study", Presentation to delegation of Masui, ILP, MIT, November 5, 2018.
[24] "The Future of Nuclear Energy in a Carbon-Constrained World - Findings from a New MIT study", NEI International Uranium Fuel Seminar, Boston, October 29, 2018.
[25] "The Future of Nuclear Energy in a Carbon-Constrained World - Findings from a New MIT study", MIT Energy Initiative Advisory Board meeting, MIT, October 23, 2018.
[26] "The Future of Nuclear Energy in a Carbon-Constrained World - Findings from a New MIT study", The MIT-Tokyo Tech Symposium on Future Nuclear Development and Deployment, Tokyo, October 9, 2018.
[27] "The Future of Nuclear Energy in a Carbon-Constrained World - Findings from a New MIT study", American Academy Advancement of Sciences, Washington DC, September 25, 2018.
[28] "The Future of Nuclear Energy in a Carbon-Constrained World - Findings from a New MIT study", FORATOM, Brussels, September 6, 2018.
[29] "The Future of Nuclear Energy in a Carbon-Constrained World - Findings from a New MIT study", Academie des Sciences, Paris, September 4, 2018.
[30] "The Future of Nuclear Energy in a Carbon-Constrained World - Findings from a New MIT study", Nuclear Industry Association, London, September 3, 2018.
[31] "Can Nuclear Energy Thrive in a Carbon-Constrained World? Findings from a new MIT study", University of Edinburgh, UK, August 29, 2018.
[32] "Can Nuclear Energy Thrive in a Carbon-Constrained World? Findings from a new MIT study", Duke Energy, Charlotte, August 14, 2018.
[33] "Can Nuclear Energy Thrive in a Carbon-Constrained World? Findings from a new MIT study", Nuclear Safety Course, MIT, June 14, 2018.
[34] "Can Nuclear Energy Thrive in a Carbon-Constrained World? Findings from a new MIT study", MIT Alumni Association of New Hampshire, Bedford, NH, June 11, 2018.
[35] "Can Nuclear Energy Thrive in a Carbon-Constrained World? Findings from a new MIT study", 49th Annual Meeting on Nuclear Technology (AMNT 2018), Berlin, Germany, May 29, 2018.

[36] "The Future of Nuclear Energy in a Carbon-Constrained World: A New MIT study", Nuclear Science and Engineering Dept., MIT, May 15, 2018.
[37] "Can Nuclear Energy Thrive in a Carbon-Constrained World? Findings from a new MIT study", Managing the Atom nuclear policy group, Harvard, May 3, 2018.
[38] "Is there a Future for Nuclear in a Carbon-Constrained World? - Findings from a new MIT study", ICAPP 2018, Charlotte, April 9, 2018.
[39] "Nuclear Energy at the Carbon Crossroads: Thrive or Decline?", Yale University, March 29, 2018.
[40] "Nuclear, why bother?", Workshop on Realizing the Value of Nuclear, MIT, March 26, 2018.
[41] "Can Nuclear Energy Thrive in a Carbon-Constrained World? Findings from a new MIT study", Forum of Indian nuclear industry, Kirloskar Brothers Limited's (KBL) Corporate Office, Mumbai, January 19, 2018.
[42] "Is Nuclear an Attractive Clean-Energy Option for Singapore?", National University of Singapore (NUS), January 16, 2018.
[43] "Can Nuclear Energy Thrive in a Carbon-Constrained World? Findings from a new MIT study", Harvard School of Business, Harvard University, November 13, 2017.
[44] "Reducing the Cost of New Nuclear: Innovations that Could Make a Difference", Royal Academy of Engineering, London, November 8, 2017
[45] "Can Nuclear Energy Thrive in a Carbon-Constrained World? Findings from a new MIT study", Advanced Nuclear Technology's Engineering, Procurement, and Construction (EPC) Workshop, EPRI, Charlotte, November 7, 2017
[46] "The Future of Nuclear Energy in a Carbon-Constrained World: An MIT study", MIT Energy Initiative Advisory Board meeting, MIT, October 26, 2017.
[47] "Nuclear Energy in a Carbon-Constrained World: Thrive or Decline? - Findings from a new MIT study", Commissariat a l'Energie Atomique (CEA), Saclay, France, October 13, 2017.
[48] "Can Nuclear Energy Thrive in a Carbon-Constrained World? - Findings from a new MIT study", Texas A&M, October 6, 2017.
[49] "Can Nuclear Energy Thrive in a Carbon-Constrained World? - Findings from a new MIT study", University of Houston, October 5, 2017.
[50] "Can Nuclear Energy Thrive in a Carbon-Constrained World? - Findings from a new MIT study", Zhejiang University, Hangzhou, September 3, 2017.
[51] "Can Nuclear Energy Thrive in a Carbon-Constrained World? - Findings from a new MIT study", Imperial College, London, June 20, 2017.
[52] "Uncovering the Secrets of Boiling Heat Transfer with Advanced Diagnostics and Nano-engineered Surfaces", Ljubljana University, Slovenia, June 19, 2017.
[53] "The Future of Nuclear Energy in a Carbon Constrained World – An MIT Study", Nuclear Energy Insider SMR Summit, Atlanta, March 30, 2107.
[54] "What Role for Nuclear Energy in a Low-Carbon World?", International Energy & Environment Summit, Dubai, UAE, March 18-20, 2017,
[55] "What Will Make or Break Nuclear Energy in a Low-Carbon World – and the Potential Role of Australia", Curtin University, Perth, Australia, January 19, 2017.
[56] "What Will Make or Break Nuclear Energy in a Low-Carbon World – and the Potential Role of Australia", RMIT, Melbourne, Australia, January 22, 2017.
[57] "The Offshore Nuclear Plant (ONP) - A New Paradigm for Construction, Siting and Operations of Nuclear Plants", Nuclear Innovation Bootcamp, University of California, Berkeley, August 4, 2016.
[58] "What Will Make or Break Nuclear Energy in a Low-Carbon World", EPRI Summer Seminar, Los Angeles, August 1-2, 2016.

[59] "What Will Make or Break Nuclear Energy in a Low-Carbon World", Oak Ridge National Laboratory, June 30, 2016

[60] "Towards a New, Generally-Applicable, Validated Model for the Formation of the Microlayer Underneath a Growing Bubble", International Workshop on New Understanding in Nanoscale/Microscale Phase Change, June 12-16, 2016, Trondheim, Norway.

[61] "Nuclear Energy: Growth Opportunities/Challenges from Fuel Cycles and Small Modular Reactors", 2016 Energy Day: Sustainable and Affordable Energy Challenge for the World, Columbia University, New York City, May 8, 2016

[62] "Offshore nuclear: A New Paradigm for Construction, Siting and Operations of Nuclear Plants", Oregon State University, Corvallis, Oregon, April 22, 2016

[63] "How to Enable a Massive Expansion in the Use of Nuclear Energy to Combat Global Warming", University of Michigan, Ann Arbor, MI, January 28, 2016

[64] "How to Enable a Massive Expansion in the Use of Nuclear Energy to Combat Global Warming", North Carolina State University (NCSU), Raleigh, NC, January 28, 2016

[65] "How to Enable a Massive Expansion in the Use of Nuclear Energy to Combat Global Warming", Federal Authority for Nuclear Regulation (FANR), Abu Dhabi, January 19, 2016

[66] "Uncovering the Secrets of Boiling Heat Transfer with Advanced Diagnostics and Nano-engineered Surfaces", Khalifa University, Abu Dhabi, January 18, 2016.

[67] "Uncovering the Secrets of Boiling Heat Transfer with Advanced Diagnostics and Nano-engineered Surfaces", Shanghai Jiao Tong University (SJTU), Shanghai, January 16, 2016.

[68] "How to Enable a Massive Expansion in the Use of Nuclear Energy to Combat Global Warming", Korea Advanced Institute of Science and Technology **(**KAIST), Daejeon, January 14, 2016

[69] "How to Enable a Massive Expansion in the Use of Nuclear Energy to Combat Global Warming", Hanyang University and Seoul National University, January 13, 2016

[70] "Offshore nuclear: A New Paradigm for Construction, Siting and Operations of Nuclear Plants", University of Wisconsin at Madison, November 16, 2015

[71] "Near-term, innovative reactor concepts: how to enable a massive expansion in the use of nuclear energy to combat global warming", MIT-China Low Carbon Energy Leaders Program, MIT, May 11, 2015.

[72] "Can Corrosion and CRUD Deposition actually Improve Safety Margins in Light Water Reactors?", Federal Authority for Nuclear Regulation (FANR), Abu Dhabi, January 21, 2015.

[73] "Near-term, innovative reactor concepts: how to enable a massive expansion in the use of nuclear energy to combat global warming", Kuwait Institute for Scientific Research (KISR), Kuwait City, Kuwait, January 18, 2015.

[74] "Uncovering the Secrets of Boiling Heat Transfer with Advanced Diagnostics and Nano-engineered Surfaces", Johns Hopkins Univ. Dec 5, 2014.

[75] "Near-term, innovative reactor concepts: how to enable a massive expansion in the use of nuclear energy to combat global warming", Presentation to delegation of Total S.A., MIT, November 14, 2014.

[76] "Nuclear Reactors on Offshore Floating Platforms: Scalable and Economic Nuclear Energy to Combat Climate Change", MIT Energy Initiative Fall Research Conference, MIT, Nov. 7, 2014.

[77] "Uncovering the Secrets of Boiling Heat Transfer with Advanced Diagnostics and Nano-engineered Surfaces", Georgia Institute of Technology, Atlanta, Georgia, October 24, 2014.

[78] "Advanced Diagnostics and Surface Engineering for Boiling Heat Transfer and Quenching Phenomena", Presentation at the kick-off meeting of the *Virtual International Research Institute of Two---Phase Flow and Heat Transfer*, EPFL, Lausanne, Switzerland, March 17, 2014.

[79] "Can Small Modular Reactors Help to Expand the Use of Nuclear Energy Worldwide?", Presentation to delegation of Total S.A., MIT, November 5, 2013.

[80] "Can Small Modular Reactors Help to Expand the Use of Nuclear Energy Worldwide?", MIT-China Low Carbon Energy Leaders Program, MIT, October 28, 2013

[81] "Future Prospects for Nuclear Power", MIT-China Low Carbon Energy Leaders Program, MIT, September 16, 2013.

[82] "Enhancement of LWR Thermal Performance through the Use of Nanofluids and Nano-engineered Surfaces", Korean Atomic Energy Research Institute (KAERI), Daejon, Korea, May 24, 2013.

[83] "Nanofluids and Nano-engineered Surfaces for Enhanced Thermal Performance of Nuclear Reactors", State Nuclear Power Technology R&D Centre, Beijing, China, May 23, 2013.

[84] Pandora's promise screening at MIT, Panel, 24 April 2013.

[85] "Thoughts about Advanced Diagnostics for Boiling Heat Transfer", International Workshop on Micro and Nano Structures for Phase Change Heat Transfer, MIT Endicott House, April 23, 2013.

[86] "Future Prospects for Nuclear Power after Fukushima", Boston University, February 5, 2013.

[87] "Future Prospects for Nuclear Power after Fukushima", Presentation to delegation of Total S.A., MIT, November 6, 2012.

[88] "Future Prospects for Nuclear Power after Fukushima", MIT-China Low Carbon Energy Leaders Program, MIT, September 17 and October 25, 2012.

[89] "ANS Perspective on Fukushima and the US Response to the Event", The 9th International Topical Meeting on Nuclear Thermal-Hydraulics, Operation and Safety (NUTHOS-9), Kaohsiung, Taiwan, September 12, 2012.

[90] "The Fukushima-Daiichi Accident: What Happened + Lessons Learned", MIT-China Low Carbon Energy Leaders Program, MIT, August 30, 2012.

[91] "Study of Boiling Phenomena through Direct Numerical Simulations and Advanced Experimental Techniques", Universite Pierre et Marie Curie (Paris 6), Paris, June 28, 2012.

[92] "Small is Beautiful? A Review of the Small Modular Reactor (SMR) Designs", American Nuclear Society (ANS) Northeastern Section Meeting, Wellesley MA, June 21, 2012.

[93] "Synchronized High-Speed Video, Infrared Thermometry and PIV Data for Validation of Interface-Tracking Simulations of Nucleate Boiling Phenomena", (keynote) *ECI 8th International Conference on Boiling and Condensation Heat Transfer* Lausanne, Switzerland, June 3 2012.

[94] "Study of Boiling Phenomena through Direct Numerical Simulations and Synchronized High-Speed Video, Infra-red Thermometry and PIV", City College of New York, May 10, 2012.

[95] "Advanced Diagnostics and Simulations for the Study of Boiling Heat Transfer Phenomena", University of Houston, April 26, 2012.

[96] "Future Prospects for Nuclear Power after Fukushima", Laboratory for Nuclear Science, MIT, February 13, 2012.

[97] "Nuclear Energy Beyond Fukushima", Presentation to delegation of Total S.A., MIT, November 7, 2011.

[98] "Impact of Fukushima on Nuclear Industry and NSE", MIT Energy Initiative External Advisory Board, October 26-28, 2011.

[99] "After Fukushima, Nuclear Energy 2.0: Environmental Benefits and Risks", the MIT Energy Club, October 7, 2011.

[100] "Nuclear Power after Fukushima: Lessons Learned and Future Prospects", Laboratory for Nuclear Science, MIT, October 5, 2011.

[101] "Advanced Experimental Methods for Boiling Heat Transfer", at course on Multiphase Flow and Boiling Heat Transfer, Modern Approach and Recent Advances, Troy, NY, September 19-23, 2011.
[102] "Enhanced LWR Thermal Performance with Nanofluids", at course on Multiphase Flow and Boiling Heat Transfer, Modern Approach and Recent Advances, Troy, NY, September 19-23, 2011.
[103] "Critical Evaluation of Heat Transfer Evaluation in Nanofluids", Tufts University, April 7, 2011.
[104] "Critical Evaluation of Heat Transfer Evaluation in Nanofluids", Newcastle University, Newcastle, New South Wales, Australia, January 17, 2011.
[105] "Advanced Computational Methods and Diagnostics for Two-phase Flow and Heat Transfer", Third International Forum on 'Multidisciplinary Education and Research Center for Energy Science', Global COE, Ishigaki-jima Island, Okinawa, December 9-14, 2010.
[106] "An Update on Nuclear Power", 2010 IEEE Conference on Innovative Technologies for an Efficient and Reliable Electricity Supply, Waltham, MA, September 29, 2010.
[107] "Nanofluids… when Glitzy Nanoscience meets Prosaic Engineering", Brown University, Providence, RI, April 19, 2010.
[108] "A Critical Investigation of Heat Transfer Enhancement in Nanofluids", Argonne National Laboratory, Argonne, IL, March 8, 2010.
[109] "Advanced computational methods and diagnostics for two-phase flow and heat transfer", Oak Ridge National Laboratory, Oak Ridge, TN, January 15, 2010
[110] "Advanced Light Water Reactors for the US Nuclear Industry", Lincoln Labs - MIT, Lexington MA, January 11, 2010.
[111] "Nanofluid Heat Transfer Enhancement for Nuclear Reactor Applications", Keynote lecture at Micro/Nanoscale Heat Transfer International Conference (MNHT2009), Shanghai, China, December 18-21, 2009.
[112] "Nanofluids for Enhanced Thermal Performance of Nuclear Reactors", UNIST, Ulsan, South Korea, December 17, 2009.
[113] "The 'Renaissance' of Nuclear Fission Energy: New Technologies ...and some Old Challenges", Keynote lecture (in Italian) at Conferenza Nazionale di Radioprotezione, Frascati, Italy, October 28, 2009
[114] "Advanced computational methods and diagnostics for two-phase flow and heat transfer", MIT-Brazil Workshop on Innovations in Nuclear Technology, Sao Paulo, Brazil, October 6-7, 2009.
[115] "Innovative Safety Aspects of Advanced LWRs", MIT-Brazil Workshop on Innovations in Nuclear Technology, Sao Paulo, Brazil, October 6-7, 2009.
[116] "Nanofluids… at the Intersection of Glitzy Nanotechnology and Prosaic Engineering", Worcester Polytechnic Institute (WPI), September 23, 2009.
[117] "Near-Term Advanced Reactors for the U.S. Nuclear Industry", Princeton University, Princeton, New Jersey, February 26, 2009
[118] "The Nuclear Renaissance in the U.S. – Fact or Fiction? – ", Princeton Plasma Physics Laboratory (PPPL), Princeton, New Jersey, February 25, 2009
[119] "Two-phase heat transfer diagnostic capabilities to meet R7 validation requirements", presentation at the workshop on "Verification and Validation, Sensitivity Analysis, and Uncertainty Quantification of a Next Generation System Safety Analysis Code", Idaho Falls, January 12, 2009.
[120] "Present and (Near) Future of Nuclear Energy in the U.S.", presentation at the "Rocca Day", Polytechnic of Milan, September 29, 2008. (in Italian)
[121] "The Nuclear Renaissance in the U.S.", Fermilab, Batavia, Illinois, July 30, 2008.
[122] "Heat Transfer Enhancement in Nanofluids", Caltech, Pasadena, California, April 22, 2008.

[123] "Nanofluids and Nuclear Power", University of California at Berkeley, April 21, 2008.
[124] "Heat Transfer Enhancement in Nanofluids and Their Applications to Nuclear Power", Rensselaer Polytechnic Institute (RPI), Troy (NY), April 16, 2008.
[125] "Heat Transfer Enhancement in Nanofluids: The MIT Research Program", University of Leeds, United Kingdom, March 28, 2008.
[126] "Nanofluids for Enhanced Economics and Safety of Nuclear Reactors", University of Wisconsin at Madison, March 25, 2008.
[127] "New Safer Nuclear Reactors", Rencontres de Physique de la Vallee d'Aoste, La Thuile, Italy, February 27, 2008.
[128] "Enhancement of Transport Phenomena in Nanofluids", King Abdulaziz City of Science and Technology (KACST), Riyadh, Kingdom of Saudi Arabia, January 22, 2008.
[129] "Nanofluids for Enhanced Economics and Safety of Nuclear Reactors", GCEP-MIT Workshop on Nuclear Fission, Opportunities for Fundamental Research and Breakthrough in Fission University Park Hotel at MIT, Cambridge, Massachusetts, November 29, 2007.
[130] "Nucleate Boiling and CHF Characteristics of Nanofluids", Engineering Conferences International (ECI) - Nanofluids: Fundamentals and Applications, Copper Mountain, Colorado, September 18, 2007.
[131] "Towards an Explanation of the Mechanism of Boiling Critical Heat Flux Enhancement in Nanofluids", Keynote lecture at 5th International Conference on Nanochannels, Microchannels and Minichannels (ASME-ICNMM2007), June 18-20, 2007, Puebla, Mexico.
[132] "Nuclear Power Prospects in the U.S. – The MIT View", Polytechnic of Milan, May 23, 2007. (in Italian)
[133] "Use of Nanofluids for Enhanced Economics and Safety of Nuclear Reactors", Paul Scherrer Institut (PSI), Zurich, May 21, 2007.
[134] "The Potential of Nanofluids as Next-Generation Coolants", Cairo 10th International Conference on Energy and Environment, Luxor, Egypt, March 11-15, 2007.
[135] "An Innovative Assembly Concept for High Power Density BWRs", Toshiba, Power and Industrial Systems Research and Development Center, Yokohama, November 29, 2006.
[136] "Use of Nanofluids for Enhanced Economics and Safety of Nuclear Reactors", 2nd International Symposium on Innovative Nuclear Energy Systems (INES-2), organized by the Tokyo Institute of Technology, Yokohama, Japan, November 26-30, 2006.
[137] "Research on Innovative Nuclear Power Technology at MIT", Royal Institute of Technology, Stockholm, October 9, 2006.
[138] "The Nuclear Renaissance in the U.S.", in the roundtable on nuclear power ("Un nuovo nucleare: un'ipotesi concreta?") at the 2006 Festa Nazionale della Margherita, Caorle, September 10, 2006. (in Italian)
[139] "Boiling Critical Heat Flux Enhancement in Nanofluids for Nuclear Applications", Idaho National Laboratory, Idaho Falls, Idaho, July 10, 2006.
[140] "Heat transfer enhancement in nanofluids", Energy Nanotechnology International Conference (ENIC '06), Cambridge, June 26, 2006.
[141] "Near-Term Advanced Nuclear Reactors and Related MIT Research", Energy Short Course, MIT, June 16, 2006.
[142] "The SuperCritical Water Reactor (SCWR): Introduction and Core Design Review", KAPL SCWR Review Meeting, Albany, March 7, 2006.
[143] "Nanofluid Coolants for Advanced Nuclear Power Plants", Idaho National Laboratory, Idaho Falls, Idaho, June 28, 2005.
[144] "Nanofluid Coolants for Nuclear Applications", Texas A&M, College Station, Texas, December 8, 2004.
[145] "The Supercritical Water Cooled Reactor (SCWR) and its Safety Characteristics", U.S. Nuclear Regulatory Commission, Rockville, October 8, 2003.

[146] "The Development of the Supercritical Light-Water-Cooled Reactor (SCWR) in the U.S.", Seminars held at:
[147] Ministry of Energy Technology of Japan (METI), Tokyo, July 16, 2003
[148] Conference of Japan Nuclear Utilities and Vendors, Tokyo, July 17, 2003
[149] Inland Northwest Research Alliance (INRA), Idaho Falls, October 27, 2003
[150] Atomic Energy of Canada Limited (AECL), Chalk River, November 13, 2003
[151] "Innovative Core Designs for the Supercritical Water Cooled Reactor", Department of Nuclear Engineering of MIT, Cambridge, May 16, 2003.
[152] "Thermal-Hydraulic and Safety Needs for the SCWR System", Generation-IV Workshop on the Thermal-hydraulics of Generation-IV reactors, Idaho Falls, March 18-19, 2003.
[153] "The Supercritical Light-Water-Cooled Reactor and its Potential for Improved Economics". Seminars held at:American Nuclear Society 2002 Winter Meeting, November 18, 2002General Electric (GE) Nuclear, San Jose, December 5, 2002
[156] Department of Nuclear Engineering of MIT, Cambridge, December 12, 2002
[157] Department of Engineering Physics of the University of Wisconsin at Madison, January 9, 2002
[158] Idaho Office of the U.S. Department of Energy (DoE), Idaho Falls, January 22, 2002
[159] Idaho State University, January 31, 2003
[160] Westinghouse Electric Company, Pittsburgh, February 7, 2003
[161] Argonne National Laboratory - West, Idaho Falls, March 11, 2003
[162] Department of Nuclear Engineering of Texas A&M, College Station, April 14, 2003
[163] Department of Nuclear Engineering of the University of California at Berkeley, November 24, 2003
[164] "Evaluation of Polonium Extraction Technology for Lead-Bismuth Cooled Fast Reactors". *Russia-Japan LBE Workshop*, Tokyo Institute of Technology, Tokyo, February 2001.
[165] "Conceptual Design of a Lead-Bismuth Cooled Fast Reactor with In-Vessel Direct-Contact Steam Generation", Department of Engineering Physics of the University of Wisconsin at Madison. February 2001.
[166] "Lead-Bismuth-Cooled Reactors for Actinide Burning and Power Production", Department of Engineering Physics of the University of Wisconsin at Madison. May 2000.