

MICHAEL L. CALVISI

Department of Mechanical & Aerospace Engineering
University of Colorado, Colorado Springs
1420 Austin Bluffs Parkway, Colorado Springs, CO 80918
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EDUCATION

- **Ph.D. University of California, Berkeley;** Applied Science and Technology, December 2006
- **M.S. University of California, Berkeley;** Applied Science and Technology, May 2004
- **B.S. University of California, Berkeley;** Mechanical Engineering, December 1992

RESEARCH INTERESTS

- Theoretical and Computational Fluid Dynamics
- Multiphase Flows, Cavitation and Bubble Dynamics
- Biofluid Mechanics and Medical Ultrasound
- Nonlinear Dynamics and Dynamical Systems

PROFESSIONAL EXPERIENCE

- 2017 – Present Associate Professor with Tenure**
Department of Mechanical and Aerospace Engineering
University of Colorado Colorado Springs; Colorado Springs, CO, USA
- 2010 – 2017 Assistant Professor**
Department of Mechanical and Aerospace Engineering
University of Colorado Colorado Springs; Colorado Springs, CO, USA
- 2008 – 2010 Post-Doctoral Research Fellow**
Department of Engineering Sciences and Applied Mathematics
Northwestern University; Evanston, IL, USA
- 2007 – 2008 Post-Doctoral Research Fellow**
School of Mathematics
University of Birmingham; Birmingham, UK
- 2000 – 2006 Graduate Student Researcher/Instructor**
University of California at Berkeley; Berkeley, CA, USA
- 1996 – 2000 Mechanical Engineer**
SciVac Corporation; San Jose, California, USA
- 1993 – 1996 Mechanical Engineer**
Lam Research Corporation; Fremont, California, USA

HONORS AND AWARDS

- **National Science Foundation CAREER Award:** National Science Foundation, \$516,009, 2017-2022
- **Researcher of the Year:** College of Engineering and Applied Science, University of Colorado Colorado Springs, 2016-2017 academic year

- **Outstanding Graduate Student Instructor:** Department of Physics, Univ. California, Berkeley, 2004
- **Departmental Fellowship:** Applied Science & Technology Graduate Group, University of California, Berkeley, 2000-2001 academic year
- **Graduation with Honors:** B.S. Mechanical Engineering, University of California, Berkeley, 1992
- **Honor Society Membership:** Tau Beta Pi; Pi Tau Sigma; Golden Key Honor Society

REFEREED PUBLICATIONS (Students supervised by M. L. Calvisi are underlined.)

- [1] C. W. Curtis and **M. L. Calvisi**. "Axisymmetric model of fluid-structure in an intracranial saccular aneurysm," *IMA Journal of Applied Mathematics*, submitted and under revision.
- [2] R. M. Elder and **M. L. Calvisi**. "Thermal effects in ultrasonic cavitation of ionic liquids," *Proceedings of the 10th International Symposium on Cavitation*, May 14-16, submitted and under review.
- [3] Y. Liu, **M. L. Calvisi** and Q. X. Wang. 2017. "Nonlinear oscillation and interfacial stability of an encapsulated microbubble under dual-frequency ultrasound," *Fluid Dynamics Research*, Vol. 49, No. 2, 025518.
- [4] S. S. Neu, J. T. Brlansky and **M. L. Calvisi**. 2016. "Nonspherical dynamics and shape mode stability of ultrasound contrast agent microbubbles," *Proceedings of the ASME 2016 International Mechanical Engineering Congress and Exposition*, November 11-17, 2016.
- [5] K. H. Song, A. C. Fan, J. T. Brlansky, T. Trudeau, A. Gutierrez-Hartmann, **M. L. Calvisi** and M. A. Borden. 2015. "High efficiency molecular delivery with sequential low-energy sonoporation bursts," *Theranostics*, Vol. 5, No. 12, pp. 1419-1427.
- [6] Q. X. Wang, K. Manmi and **M. L. Calvisi**. 2015. "Numerical modeling of the 3D dynamics of ultrasound contrast agent microbubbles using the boundary integral method," *Physics of Fluids*, Vol. 27, No. 2, 022104.
- [7] J. M. Carroll, L. K. Lauderbaugh and **M. L. Calvisi**. 2013. "Control of ultrasound contrast agent microbubbles: PID and sliding mode control," *Proceedings of the ASME 2013 International Mechanical Engineering Congress and Exposition*, November 15-21, 2013.
- [8] J. M. Carroll, S. A. Burritt, **M. L. Calvisi** and L. K. Lauderbaugh. 2013. "Nonlinear dynamics of ultrasound contrast agent microbubbles: Simulation and experimentation," *Proceedings of the ASME 2013 International Mechanical Engineering Congress and Exposition*, November 15-21, 2013.
- [9] C. W. Curtis and **M. L. Calvisi**. 2013. "Axisymmetric model of an intracranial saccular aneurysm: Theory and computation," *Proceedings of the ASME 2013 International Mechanical Engineering Congress and Exposition*, November 15-21, 2013.
- [10] J. M. Carroll, L. K. Lauderbaugh and **M. L. Calvisi**. 2013. "Application of nonlinear sliding mode control to ultrasound contrast agent microbubbles," *Journal of the Acoustical Society of America*, Vol. 134, No. 1, pp. 216-222.

- [11] J. M. Carroll, **M. L. Calvisi** and L. K. Lauderbaugh. 2013. “Dynamical analysis of the nonlinear response of ultrasound contrast agent microbubbles,” *Journal of the Acoustical Society of America*, Vol. 133, No. 5, pp. 2641-2649.
- [12] **M. L. Calvisi**, J. M. Carroll and L. K. Lauderbaugh. 2012. “Analysis of the nonlinear dynamics of ultrasound contrast agent microbubbles,” *Proceedings of the 8th International Symposium on Cavitation*, August 13-16, pp. 97-102.
- [13] **M. L. Calvisi**, J. I. Iloretta and A. J. Szeri. 2008. “Dynamics of bubbles near a rigid surface subjected to a lithotripter shock wave. Part 2. Reflected shock intensifies nonspherical cavitation collapse,” *Journal of Fluid Mechanics*, Vol. 616, pp. 63-97.
- [14] E. Klaseboer, S. W. Fong, C. K. Turangan, B. C. Khoo, A. J. Szeri, **M. L. Calvisi**, G. N. Sankin and P. Zhong. 2007. “Interaction of lithotripter shockwaves with single inertial cavitation bubbles,” *Journal of Fluid Mechanics*, Vol. 593, pp. 33-56.
- [15] **M. L. Calvisi**, O. Lindau, J. R. Blake and A. J. Szeri. 2007. “Shape stability and violent collapse of microbubbles in acoustic traveling waves,” *Physics of Fluids*, Vol. 19, No. 4, 047101.
- [16] J. Awrejcewicz and **M. L. Calvisi**. 2002. “Mechanical models of Chua’s Circuit,” *International Journal of Bifurcation and Chaos*, Vol. 12, No. 4, pp. 671-686.

NON-REFEREED PUBLICATIONS, CONFERENCE ABSTRACTS, AND PROCEEDINGS

- [1] **M. L. Calvisi** and R. M. Elder. 2017. "Numerical modeling of ultrasonic cavitation in ionic liquids," *Bulletin of the American Physical Society*, Vol. 62, No. 14.
- [2] **M. L. Calvisi**. 2016. "Nonspherical dynamics and shape mode stability of ultrasound contrast agent microbubbles," *Bulletin of the American Physical Society*, Vol. 61, No. 20.
- [3] **M. L. Calvisi**, Y. Liu and Q. X. Wang. 2016. "Nonlinear oscillation and interfacial stability of an encapsulated microbubble under dual-frequency ultrasound," *Bulletin of the American Physical Society*, Vol. 61, No. 20.
- [4] J. T. Brlansky and **M. L. Calvisi**. 2016. “Shape mode stability of lipid-coated ultrasound contrast agent microbubbles,” *Journal of the Acoustical Society of America*, Vol. 139, No. 4, p. 2093.
- [5] **M. L. Calvisi** and S. S. Neu. 2016. “Nonspherical Dynamics and Shape Stability of Ultrasound Contrast Agent Microbubbles near a Rigid Boundary,” *Proceedings of the 16th International Symposium on Transport Phenomena and Dynamics of Rotating Machinery*, April 10-15, p. 50.
- [6] **M. L. Calvisi**, K. Manmi and Q. X. Wang. 2014. "Numerical modeling of 3-D dynamics of ultrasound contrast agent microbubbles using the boundary integral method," *Bulletin of the American Physical Society*, Vol. 59, No. 20, p. 1.

- [7] **J. M. Carroll**, L. K. Lauderbaugh and **M. L. Calvisi**. 2013. “Nonlinear dynamics and control of ultrasound contrast agent microbubbles,” *Journal of the Acoustical Society of America*, Vol. 134, No. 5, p. 3991.
- [8] **M. L. Calvisi** and L. K. Lauderbaugh. 2013. “Nonlinear dynamics and control of ultrasound contrast agent microbubbles,” *BioFrontiers Institute – Butcher Program Symposium*, University of Colorado, CO.
- [9] **M. L. Calvisi**, S. Martynov, Q. X. Wang and E. Stride. 2011. “Numerical modelling of ultrasound contrast agent microbubbles using BE and FE methods,” *Proceedings of the WIMRC 3rd International Cavitation Forum*, July 4-6, pp. 1-7.
- [10] **M. L. Calvisi**, S. Davis and M. Miksis. 2010. “A mathematical model of intracranial saccular aneurysms: Evidence of hemodynamic instability,” *Bulletin of the American Physical Society*, Vol. 55, No. 16, p. 407.
- [11] **M. L. Calvisi**. 2009. “Bubble energetics in cavitation driven by ultrasound and shock waves,” COST Action D32 Final Meeting, *Chemistry in High-Energy Microenvironments*, Krakow University of Technology, Krakow, Poland.
- [12] **M. L. Calvisi** and J. R. Blake. 2008. “Weakly compressible theory and modelling of nonspherical acoustic bubbles,” *50th British Applied Mathematics Colloquium*, University of Manchester, Manchester, United Kingdom.
- [13] **M. L. Calvisi**, Q. X. Wang and J. R. Blake. 2007. “Applications of sonoporation: Acoustically-stimulated nonspherical collapse and jetting of multiple bubbles near a surface,” *Bulletin of the American Physical Society*, Vol. 52, No. 12, p. 168.
- [14] T. C. Ferree, A. R. Wade, **M. L. Calvisi**, A. J. Szeri, D. T. J. Liley, B. A. Inglis and A. M. Norcia. 2007. “Experimental study of EEG and BOLD responses to sinusoidal contrast modulation,” *Proceedings of the 2007 International Conference of the IEEE Engineering in Medicine and Biology Society*, Dallas, TX.
- [15] **M. L. Calvisi**, J. I. Iloretta, J. R. Blake and A. J. Szeri. 2007. “Shock-bubble interaction near a rigid surface,” *IUTAM Symposium on Recent Advances in Multiphase Flows: Numerical and Experimental*, Istanbul Technical University, Istanbul, Turkey.
- [16] **M. L. Calvisi**, J. I. Iloretta, J. R. Blake and A. J. Szeri. 2007. “Shock-bubble interaction near a rigid surface,” *49th British Applied Mathematics Colloquium*, University of Bristol, Bristol, United Kingdom.
- [17] **M. L. Calvisi**, O. Lindau, J. R. Blake and A. J. Szeri. 2006. “Shape stability and violent collapse of microbubbles in acoustic traveling waves,” COST Action D32 Meeting, *Chemistry in High-Energy Microenvironments: Fundamentals in Cavitation, Sonochemistry and Sonoluminescence*, University of Göttingen, Göttingen, Germany.

- [18] **M. L. Calvisi**, A. J. Szeri, G. Sankin, P. Zhong and J. R. Blake. 2005. “Shock interaction with a growing or collapsing bubble,” *Bulletin of the American Physical Society*, Vol. 50, No. 9, p. 27.
- [19] **M. L. Calvisi**, A. J. Szeri, D. T. J. Liley and T. C. Ferree. 2004. “Theoretical study of BOLD response to sinusoidal input,” *Proceedings of the 2004 International Conference of the IEEE Engineering in Medicine and Biology Society*, San Francisco, CA.

MANUSCRIPTS IN PROGRESS

- [1] Y. Liu, Q. X. Wang and **M. L. Calvisi**. “Shape oscillation of an encapsulated microbubble under translational motion,” in preparation, to be submitted to *Physics of Fluids*.
- [2] R. M. Elder and **M. L. Calvisi**. “Thermal and mass transfer effects in ultrasonic cavitation of ionic liquids,” in preparation, to be submitted to *Ultrasonics Sonochemistry*.

PRESENTATIONS AT MEETINGS AND SEMINARS

- [1] Invited Presentation: “Dynamics and control of encapsulated ultrasound microbubbles for biomedicine,” *Department of Mechanical & Aerospace Engineering, George Washington University, Washington, DC, January 24, 2018*.
- [2] Conference Presentation: “Numerical modeling of ultrasonic cavitation in ionic liquids,” *American Physical Society 70th Annual Division of Fluid Dynamics Meeting, Denver, CO, November 19-21, 2017*.
- [3] Seminar Presentation: “The marvels of medical microbubbles,” *Department of Mechanical & Aerospace Engineering, University of Colorado, Colorado Springs, Colorado Springs, CO, October 20, 2017*.
- [4] Invited Presentation: “Dynamics and control of encapsulated ultrasound microbubbles for biomedicine,” *Boulder Fluid and Thermal Sciences Seminar Series, University of Colorado, Boulder, Boulder, CO, May 16, 2017*
- [5] Invited Conference Presentation (Mini-Symposium): “Nonspherical dynamics and shape mode stability of ultrasound contrast agent microbubbles,” *American Physical Society 69th Annual Division of Fluid Dynamics Meeting, Portland, OR, November 20-22, 2016*.
- [6] Conference Presentation: “Nonlinear oscillation and interfacial stability of an encapsulated microbubble under dual-frequency ultrasound,” *American Physical Society 69th Annual Division of Fluid Dynamics Meeting, Portland, OR, November 20-22, 2016*.
- [7] Conference Presentation: “Nonspherical dynamics and shape mode stability of ultrasound contrast agent microbubbles,” *ASME 2016 International Mechanical Engineering Congress and Exposition, Phoenix, AZ, November 11-17, 2016*.

- [8] Conference Presentation: “Shape mode stability of lipid-coated ultrasound contrast agent microbubbles,” *171st Meeting of the Acoustical Society of America*, Salt Lake City, Utah, May 23-27, 2016.
- [9] Conference Presentation: “Nonspherical Dynamics and Shape Stability of Ultrasound Contrast Agent Microbubbles near a Rigid Boundary,” *16th International Symposium on Transport Phenomena and Dynamics of Rotating Machinery*, Honolulu, Hawaii, April 10-15, 2016.
- [10] Conference Presentation: “Numerical Modeling of 3-D Dynamics of Ultrasound Contrast Agent Microbubbles Using the Boundary Integral Method,” *American Physical Society 67th Annual Division of Fluid Dynamics Meeting*, San Francisco, CA, November 23-25, 2014.
- [11] Conference Presentation: “Nonlinear Dynamics and Control of Ultrasound Contrast Agent Microbubbles,” *166th Meeting of the Acoustical Society of America*, San Francisco, CA, December 2-6, 2013.
- [12] Seminar Presentation: “Nonlinear Control of Medical Microbubbles for Ultrasound Imaging and Drug Delivery,” *BioFrontiers Institute, University of Colorado Colorado Springs*, Colorado Springs, CO, November 22, 2013.
- [13] Conference Presentation: “Nonlinear dynamics of ultrasound contrast agent microbubbles: Simulation and experimentation,” *ASME 2013 International Mechanical Engineering Congress and Exposition*, San Diego, CA, November 15-21, 2013.
- [14] Poster Presentation: “Nonlinear Dynamics and Control of Ultrasound Contrast Agent Microbubbles,” *BioFrontiers Institute – Butcher Program Symposium*, University of Colorado, CO, November 1, 2013.
- [15] Invited Presentation: “Modeling moving interfaces: From bubbles to brain aneurysms,” *Metso Minerals Industries, Inc.*, Colorado Springs, CO, March 22, 2013.
- [16] Conference Presentation: “Analysis of the nonlinear dynamics of ultrasound contrast agent microbubbles,” *8th International Symposium on Cavitation*, Singapore, August 13-16, 2012.
- [17] Invited Conference Presentation: “Modeling intense cavitation collapse in ionic liquids,” *Bubble Dynamics Workshop*, University of Birmingham, Birmingham, United Kingdom, April 19-20, 2012.
- [18] Invited Presentation: “Dynamics and modeling of ultrasound contrast agent microbubbles,” *Department of Mechanical Engineering, University of Colorado, Boulder*, Boulder, CO, October 27, 2011.
- [19] Invited Presentation (Teleconference): “Numerical modeling of microbubbles: Past and present research,” *Drittes Physikalisches Institut, University of Göttingen*, Göttingen, Germany, September 28, 2011.
- [20] Invited Presentation: “Numerical modelling of ultrasound contrast agent microbubbles using BE and FE methods,” *Department of Mechanical Engineering, University College London*, London, United Kingdom, July 11, 2011.

- [21] Invited Conference Presentation: “Numerical modelling of ultrasound contrast agent microbubbles using BE and FE methods,” *Bubble Dynamics Workshop*, University of Birmingham, Birmingham, United Kingdom, July 7, 2011.
- [22] Conference Presentation: “Numerical modelling of ultrasound contrast agent microbubbles using BE and FE methods,” *WIMRC 3rd International Cavitation Forum*, University of Warwick, Coventry, United Kingdom, July 4-6, 2011.
- [23] Seminar Presentation: “A mathematical model of intracranial aneurysms: Evidence of hemodynamic instability,” *Department of Mechanical & Aerospace Engineering, University of Colorado, Colorado Springs*, Colorado Springs, CO, March 4, 2011.
- [24] Conference Presentation: “A mathematical model of intracranial saccular aneurysms: Evidence of hemodynamic instability,” *American Physical Society, Division of Fluid Dynamics 63rd Annual Meeting*, Long Beach, CA, November 21-23, 2010.
- [25] Invited Conference Presentation: “Bubble energetics in cavitation driven by ultrasound and shock waves,” COST Action D32 Final Meeting, *Chemistry in High-Energy Microenvironments*, Krakow University of Technology, Krakow, Poland, March 29 - April 1, 2009.
- [26] Invited Presentation: “Applications of the Boundary Integral Method in bubble dynamics,” *Drittes Physikalisches Institut, University of Göttingen*, Göttingen, Germany, May 15, 2008.
- [27] Conference Presentation: “Weakly compressible theory and modelling of nonspherical acoustic bubbles,” *50th British Applied Mathematics Colloquium*, University of Manchester, Manchester, United Kingdom, March 31 - April 3, 2008.
- [28] Invited Presentation: “Bubbles bursting in blood vessels: Acoustically-stimulated nonspherical collapse of contrast agent microbubbles,” *School of Mathematics, University of East Anglia*, Norwich, United Kingdom, January 28, 2007.
- [29] Invited Presentation: “Acoustically-stimulated nonspherical collapse and jetting of multiple bubbles near a rigid surface,” *Department of Mechanical Engineering, University College London*, London, United Kingdom, December 5, 2007.
- [30] Conference Presentation: “Applications of sonoporation: Acoustically-stimulated nonspherical collapse and jetting of multiple bubbles near a surface,” *American Physical Society, Division of Fluid Dynamics 60th Annual Meeting*, Salt Lake City, UT, November 18-20, 2007.
- [31] Invited Conference Presentation: “Shock-bubble interaction near a rigid surface,” *IUTAM Symposium on Recent Advances in Multiphase Flows: Numerical and Experimental*, Istanbul Technical University, Istanbul, Turkey, June 11-14, 2007.
- [32] Conference Presentation: “Shock-bubble interaction near a rigid surface,” *49th British Applied Mathematics Colloquium*, University of Bristol, Bristol, United Kingdom, April 17-19, 2007.

- [33] Invited Conference Presentation: “Shape stability and violent collapse of microbubbles in acoustic traveling waves,” COST Action D32 meeting, *Chemistry in High-Energy Microenvironments: Fundamentals in Cavitation, Sonochemistry and Sonoluminescence*, University of Göttingen, Göttingen, Germany, October 23, 2006.
- [34] Conference Presentation: “Shock interaction with a growing or collapsing bubble,” *American Physical Society, Division of Fluid Dynamics 58th Annual Meeting*, Chicago, IL, November 20-22, 2005.
- [35] Seminar Presentation: “Shock interaction with a growing or collapsing bubble,” *Department of Mechanical Engineering, University of California, Berkeley*, Berkeley, CA, November 7, 2005.
- [36] Conference Presentation: “Theoretical study of BOLD response to sinusoidal input,” *2004 International Conference of the IEEE Engineering in Medicine and Biology Society*, San Francisco, CA, September 1-5, 2004.
- [37] Seminar Presentation: “Particle tracking in turbulent, multiphase flows,” *Sandia National Laboratories*, Livermore, CA, August 13, 2002.

GRANTS AND SCHOLARSHIP

Grants Received:

- [1] **\$516,009**, National Science Foundation, “CAREER: Optimal Control of Encapsulated Ultrasound Microbubbles for Biomedicine”, 09/01/17 – 08/31/22, **M. L. Calvisi** (PI).
- [2] **\$1,500**, EAS Undergraduate Research Scholars Program, “Computational Modeling of Pulsatile Flow in Intracranial Saccular Aneurysms,” 07/01/15 – 06/30/16, **M. L. Calvisi** (PI).
- [3] **\$25,000**, UCCS Center for the Biofrontiers Institute, “Nonlinear Control of Medical Microbubbles for Ultrasound Imaging and Drug Delivery,” 06/01/13 – 05/31/14, **M. L. Calvisi** (Co-PI) and L. K. Lauderbaugh (Co-PI).
- [4] **\$7,500**, UCCS Committee on Research and Creative Works, “Experimental Investigation of Medical Microbubbles,” 07/01/13 – 06/30/14, **M. L. Calvisi** (PI).
- [5] **\$2,000**, EAS Undergraduate Research Scholars Program, “Computational Modeling of Intracranial Saccular Aneurysms,” 07/01/13 – 06/30/14, **M. L. Calvisi** (PI).
- [6] **\$2,500**, EAS Undergraduate Research Scholars Program, “Computational Modeling of Intracranial Saccular Aneurysms,” 07/01/12 – 06/30/13, **M. L. Calvisi** (PI).
- [7] **\$20,082**, ERC, Inc./Air Force Research Laboratory, “Computational Modeling of Ultrasonic Cavitation in Ionic Liquids,” 09/01/11 – 12/31/12, **M. L. Calvisi** (PI).
- [8] **\$7,500**, UCCS Committee on Research and Creative Works, “Experimental Laser-Induced Bubble Formation and Analysis,” 07/01/11 – 06/30/12, **M. L. Calvisi** (PI).

- [9] **\$13,500**, ERC, Inc./Air Force Research Laboratory, “Cavitation Modeling,” 01/01/11 – 12/31/11, **M. L. Calvisi** (PI).
- [10] **\$1,000**, EAS Undergraduate Research Scholars Program, “Computational Modeling of Contrast Agent Microbubbles,” 07/01/10 – 06/30/11, **M. L. Calvisi** (PI).

COURSES TAUGHT (Through Fall 2016)

- MAE 1502: Principles of Engineering (Undergraduate, 3 credit hours, taught three times)
- MAE 3130: Fluid Mechanics (Undergraduate, 3 credit hours, taught seven times)
- MAE 3201: Strength of Materials (Undergraduate, 3 credit hours, taught two times)
- MAE 4402: Intermediate Dynamics (Undergraduate, 3 credit hours, taught seven times)
- MAE 5012: Engineering Analysis II (Graduate, 3 credit hours, taught four times)
- MAE 5130: Incompressible Flow (Graduate, 3 credit hours, taught one time)
- MAE 5135: Multiphase Flows (Graduate, 3 credit hours, taught one time)

PROFESSIONAL ORGANIZATIONS, REGISTRATIONS, AND ACTIVITIES

- Registered Professional Mechanical Engineer, California (1996 – Present)
- American Physical Society – Division of Fluid Dynamics, Regular Member (2007 – Present)
- American Society of Mechanical Engineers, Regular Member (2013 – Present)
- Acoustical Society of America, Associate Member (2017 – Present)

SCIENTIFIC REVIEW ACTIVITIES

Journals:

- *Journal of Fluid Mechanics*
- *Physics of Fluids*
- *Journal of the Acoustical Society of America*
- *ASME Journal of Fluids Engineering*
- *Journal of Nonlinear Science*
- *Journal of Engineering Mathematics*
- *Fluid Dynamics Research*
- *Physics Letters A*
- *The IMA Journal of Applied Mathematics*
- *Biomechanics and Modeling in Mechanobiology*
- *Journal of Physics D: Applied Physics*
- *Physica Scripta*

Conferences:

- *ASME International Mechanical Engineering Congress and Exposition (IMECE)*

Books:

- Multiphase Flow Handbook, Second Edition, E. Michaelides, C. Crowe & J. Schwarzkopf (CRC Press).

Grant Review Panels:

- *National Science Foundation*, Program in Particulate and Multiphase Processes, Director: Dr. Susan Muller, January 2018.

SERVICE

- Organizing Committee: *American Physical Society 70th Annual Division of Fluid Dynamics Meeting*, Denver, CO, November 19-21, 2017
- Session Chair: *American Physical Society 70th Annual Division of Fluid Dynamics Meeting*, Denver, CO, November 19-21, 2017
- Dean Search Committee – College of Engineering & Applied Science: Member, Summer 2017 – Present
- Mini-Symposium Organizer and Chair: “Multiphase Flows in Biomedicine,” *American Physical Society 69th Annual Division of Fluid Dynamics Meeting*, Portland, OR, November 20-22, 2016
- Session Co-Organizer and Co-Chair: “Multiphase Flow with Bio-Applications,” *ASME 2016 International Mechanical Engineering Congress and Exposition*, Phoenix, AZ, November 11-17, 2016.
- MAE Executive Committee: Member, Fall 2016 – Present
- MAE Graduate Affairs Committee:
 - Chair, Spring 2015 – Summer 2015
 - Member, Fall 2013 – Spring 2016
- Historical Engineering Society, UCCS: Faculty Co-Advisor, Fall 2010 – Fall 2013
- MAE Curriculum Committee: Member, Fall 2010 – Spring 2013
- MAE Ad-Hoc Workload Committee: Member, Spring 2012 – Spring 2013
- MAE Ad-Hoc RPT Committee: Member, Fall 2012 – Spring 2013
- MAE Faculty Search Committee: Member, Fall 2012
- Task Force on UCCS Center for Innovations in Wellness and Health Promotion, UCCS: Member, Fall 2011 – Spring 2012
- Session Chair: *8th International Symposium on Cavitation*, Singapore, August 13-16, 2012
- MAE Faculty Search Committee: Member, Fall 2010

PATENTS

E. Lenz, **M. L. Calvisi**, I. Miller and B. Frazier. 1996. “Electrode Clamping Assembly and Method for Assembly and Use Thereof,” Lam Research Corp., U.S. Patent No. 5,569,356.

STUDENT SUPERVISION (Students listed in reverse chronological order under each subheading.)

Current Graduate Research Supervised:

- [1] Bashir Alnajjar (Fall 2015 – Present). Ph.D. Candidate in Engineering – Mechanical Engineering, expected December 2019. Ph.D. Qualifying Exam passed – February 2016.
- [2] Fathia Arifi (Fall 2014 – Present). Ph.D. Candidate in Engineering – Mechanical Engineering, expected December 2018. Ph.D. Qualifying Exam passed – February 2015.

Past Graduate Research Supervised:

- [1] John Brlansky (Fall 2013 – Spring 2015). M.S. Mechanical Engineering, May 2015.

M.S. Thesis title: “Numerical Evaluation of Shape Mode Stability of Ultrasound Contrast Agent Microbubbles.”

[2] Sean Neu (Spring 2013 – Spring 2015). M.S. Mechanical Engineering, May 2015.

M.S. Thesis title: “Numerical Investigation of Nonspherical Dynamics and Shape Stability of Ultrasound Contrast Agent Microbubbles near a Rigid Boundary.”

[3] James Carroll (Spring 2011 – Spring 2012). M.S. Mechanical Engineering, May 2012. *Outstanding Graduate Student in Mechanical and Aerospace Engineering*, May 2012.

M.S. Thesis title: “Nonlinear Dynamical Analysis and Control of Ultrasound Contrast Agent Microbubbles.”

[4] Ross Elder (Fall 2011 – Fall 2012). M.S. Mechanical Engineering, December 2012.

M.S. Thesis title: “Numerical Modeling of Ultrasonic Cavitation in Ionic Liquids: A Study of Fluid Properties and Thermal Effects.”

[5] Joseph Ulisse (Fall 2010 – Fall 2011). M.S. Mechanical Engineering, December 2011.

M. S. Thesis title: “Viscous and compressible effects in ultrasonic cavitation with heat and mass transfer.”

Undergraduate Research Supervised:

[1] Ryan Reger (Spring 2016). EAS Undergraduate Research Scholar. B.S. Mechanical Engineering – UCCS, May 2016.

[2] Natalia Valdivieso Tamayo (Spring 2015). Balsells Mobility Undergraduate Research Scholar. B.S. Mechanical Engineering – Universitat Politècnica de Catalunya, May 2015.

[3] Laia Ragués Pujol (Spring 2014). Balsells Mobility Undergraduate Research Scholar. B.S. Mechanical Engineering – Universitat Politècnica de Catalunya, May 2014.

[4] Colin Curtis (Fall 2012 – Spring 2014). EAS Undergraduate Research Scholar, Undergraduate Research Academy member. B.S. Mechanical Engineering – UCCS, May 2014.

[5] Mitchell Holck (Summer 2012). Undergraduate Research Assistant. B.S. Mechanical Engineering – UCCS, May 2013.

[6] Akihiko Ohnaka (Spring 2012). Undergraduate Research Assistant. B.S. Mechanical Engineering – UCCS, May 2012.

[7] Paola Genao (Fall 2010 – Spring 2011). EAS Undergraduate Research Scholar. B.S. Mechanical Engineering – UCCS, May 2011.

Independent Study Supervised:

[1] Jonathan Frazey (Summer 2016), Mechanical and Aerospace Engineering, University of Colorado Colorado Springs.

[2] Akihiko Ohnaka (Summer 2011, Fall 2011), Mechanical and Aerospace Engineering, University of Colorado Colorado Springs.

Graduate Thesis & Dissertation Committees:

[1] Chair, Ph.D. Dissertation Committee for Fathia Arifi, Engineering – Mechanical Engineering, University of Colorado Colorado Springs, current.

[2] Chair, Ph.D. Dissertation Committee for Bashir Alnajjar, Engineering – Mechanical Engineering, University of Colorado Colorado Springs, current.

[3] Member, Ph.D. Dissertation Committee for Saad Adam, Mechanical Engineering, University of Colorado Denver, current.

[4] Chair, M.S. Thesis Committee for John Brlansky, M.S. Mechanical Engineering, University of Colorado Colorado Springs, May 2015.

[5] Chair, M.S. Thesis Committee for Sean Neu, M.S. Mechanical Engineering, University of Colorado Colorado Springs, May 2015.

[6] Member, M.S. Thesis Committee for Lauren McNair, M.S. Mechanical Engineering, University of Colorado Colorado Springs, December 2014.

[7] Member, M.S. Thesis Committee for Matthew Pedersen, M.S. Mechanical Engineering, University of Colorado Colorado Springs, December 2014.

[8] Member, M.S. Thesis Committee for Timothy Siefers, M.S. Mechanical Engineering, University of Colorado Colorado Springs, May 2013.

[9] Chair, M.S. Thesis Committee for Ross Elder, M.S. Mechanical Engineering, University of Colorado Colorado Springs, December 2012.

[10] Chair, M.S. Thesis Committee for James Carroll, M.S. Mechanical Engineering, University of Colorado Colorado Springs, May 2012.

[11] Chair, M.S. Thesis Committee for Joseph Ulisse, M.S. Mechanical Engineering, University of Colorado Colorado Springs, December 2011.