

# Jenn Stroud Rossmann

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Matthew Baird Professor  
Mechanical Engineering Department  
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<http://sites.lafayette.edu/rossmanj>

## EDUCATION

**Ph.D. University of California, Berkeley**, Applied Physics, 2000

*Numerical Simulation of Blood Flow in the Severely Stenotic Carotid Artery Bifurcation*. Thesis committee: Stanley A. Berger, mechanical engineering (Chair); Ömer Savaş, mechanical engineering; Alexandre Chorin, mathematics.

**B.S. University of California, Berkeley**, Mechanical Engineering, 1995

Emphasis in fluid mechanics, heat transfer. Minor in English (creative writing).

## EXPERIENCE

**Professor of Mechanical Engineering**, 2017-present

**Associate Professor of Mechanical Engineering**, 2012-2017

**Assistant Professor of Mechanical Engineering**, 2005-2012

*Lafayette College • Easton, Pennsylvania*

- **Co-Director, Hanson Center for Inclusive STEM Education**, 2020-present  
Coordinate student support, faculty development, curricular design and research related to advancing College practices and understanding of inclusion in STEM. More at <https://hanson.lafayette.edu>

Since 2016, convened and facilitated faculty and staff to generate collaborative proposal for coordinated Inclusive STEM efforts at the College, including new faculty lines, curricular design and review, student support, faculty development, and securing endowed support for center. Partnered with colleague in Women's, Gender, & Sexuality Studies to write white paper and develop community support.

- **Department Head**, July 2012-July 2017 and 2018-2019  
Supervised 12 faculty members; chaired multiple search processes; managed budget and resources; coordinated ABET assessment process and successful reaccreditation; oversaw curricular reform and created minor program.
- Committee service has included Promotion, Tenure, & Review Committee, and Faculty Governance Committee (Chair).

Taught biomechanics, thermodynamics, heat transfer, strength of materials, capstone thermo-fluids laboratory for engineering students; Developed and taught courses for liberal arts students in (1) engineering as a narrative of modern American history and culture; (2) race and technology; and (3) the art and science of flow visualization. Advised undergraduate research including simulation of physiological flows, development of flow visualization and PIV laboratory, and independent & collaborative design projects, including Grand Challenges.

- Honored with 2019 Thomas Roy and Lura Forrest Jones Award for "superior teaching and scholarly contributions to a discipline."
- Honored with 2012 Jones Lecture Award for Excellence in Scholarship.
- Honored with 2010 Viscomi Prize for Excellence in Mentoring & Teaching.

**Assistant Professor of Engineering, 2001-2005**

*Harvey Mudd College • Claremont, California*

Taught continuum mechanics, heat transfer, fluid mechanics, biomechanics, dynamic systems, solid mechanics, engineering laboratory. Advised undergraduate research including design, construction, and operation of subsonic wind tunnel; and numerical simulation of physiological flows.

**Mechanical Engineering Instructor, 2000**

*University of California, Berkeley*

Served as sole instructor for undergraduate course in fluid mechanics.

**SCHOLARLY PUBLICATIONS:**

**BOOKS**

Mase, G. Thomas, Smelser, Ronald E., and **Rossmann, J.S.** (2020) *Continuum Mechanics for Engineers*, Fourth Edition, Taylor & Francis/CRC Press/Routledge.

**Rossmann, J.S.** Dym, C.L., and Bassman, L.C. (2015) *Introduction to Engineering Mechanics: A Continuum Approach*, Second Edition, Taylor & Francis/CRC Press.

**Rossmann, J.S.** and Dym, C.L. (2008) *Introduction to Engineering Mechanics: A Continuum Approach*, Taylor & Francis/CRC Press.

**JOURNAL ARTICLES**

**Rossmann, J.S.** (2016) Engineering design as a liberal art, *International Journal of Engineering Education* 32 (2): 1502-1507.

**Rossmann, J.S.** and Sanford Bernhardt, Kristen L. (2015) Sociotechnical engineering is one facet of prismatic liberal education, *Engineering Studies* 10.1080/19378629.2015.1062505.

Clark, A.\*; **Rossmann, Jenn Stroud**; Katz, I. M.; Martin, A. R.; Caillibotte, G. (2015) Pressure loss coefficients for asymmetric bifurcations of pulmonary airways with predetermined flow distributions, *Journal of Bioengineering and Biomedical Science*, 10.4172/2155-9538.1000148.

Albert, S.\*, Balaban, R.S., Neufeld, E., and **Rossmann, J.S.** (2014) Influence of the renal artery ostium flow diverter on hemodynamics and atherogenesis, *Journal of Biomechanics*, 47(7): 1594-602.

Chan, C.M.\* and **Rossmann, J.S.** (2012) Badminton shuttlecock aerodynamics: synthesising experiment and theory, *Sports Engineering* 15: 61-71.

Cummins, M.\* and **Rossmann, J.S.** (2010) Hemodynamics of ulcerated plaques: before and after, *Journal of Biomechanical Engineering* 132(10): 104503.1-8.

**Rossmann, J.S.** (2010) Elastomechanical behavior of bovine veins, *Journal of the Mechanical Behavior of Biomedical Materials* 3(2): 210-215.

Fisher, C.\* and **Rossmann, J.S.** (2009) Effect of non-Newtonian behavior on hemodynamics of cerebral aneurysms, *Journal of Biomechanical Engineering*, 131(9): 091004.1-9. **Cover image for journal.**

**Rossmann, J.S.** and Rau, A.\* (2007) An experimental study of Wiffle ball aerodynamics, *American Journal of Physics*, 75(12): 1099-1105.

Utter, B.\* and **Rossmann, J.S.** (2007) Numerical simulation of saccular aneurysm hemodynamics: influence of morphology on rupture risk, *Journal of Biomechanics*

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\* Undergraduate co-author

40(12): 2716-2722.

Lorthois, S., **Rossmann, J. Stroud**, Berger, S.A., Jou, L.D. and Saloner, D. (2005) Numerical simulation of Magnetic Resonance Angiographies of an anatomically realistic stenotic carotid bifurcation, *Annals of Biomedical Engineering*, Vol. 33: 270-283.

Dym, C.L., **Rossmann, J.S.**, and Sheppard, S.D. (2004) Designing engineering education, *International Journal of Engineering Education*, Vol. 20: 470-474.

**Stroud, J.S.**, Berger, S.A., and Saloner, D. (2002) Numerical analysis of flow through a severely stenotic carotid artery bifurcation, *Journal of Biomechanical Engineering*, Vol. 124: 9-20.

**Stroud, J.S.**, Berger, S.A., and Saloner, D. (2000) Influence of stenosis morphology on flow through stenotic vessels: implications for plaque rupture, *Journal of Biomechanics*, Vol. 33: 443-455.

#### OTHER ARTICLES & CHAPTERS

**Rossmann, J. S.** (2021) Remolding the world together, ASEE Committee on Diversity, Equity, and Inclusion.

<https://diversity.asee.org/deicommitee/2021/03/30/remolding-the-world-together/>

**Rossmann, J.S.** (2020) Public Thinker: Virginia Eubanks Interview, *Public Books*

**Rossmann, J. S.** (2019) Wind Energy in *30-second Engineering*, Edited by James Treveylan, Ivy Press.

**Rossmann, J. S.** (2017) The contentious physics of Wiffle ball, *The Atlantic*, September 15, 2017, An Object Lesson.

<https://www.theatlantic.com/technology/archive/2017/09/wiffle-ball-physics/539982/>

Stewart-Gambino, H. and **Rossmann, J. Stroud** (2015) Often asserted, rarely measured: The value of integrating humanities, arts, and STEM learning, Report commissioned by National Academies of Science and Engineering.

[http://sites.nationalacademies.org/cs/groups/pgasite/documents/webpage/pga\\_170985.pdf](http://sites.nationalacademies.org/cs/groups/pgasite/documents/webpage/pga_170985.pdf)

**Rossmann, J.S.** (2014) Chocolate and peanut butter: Engineering and liberal arts, *Inside Higher Ed* <https://www.insidehighered.com/blogs/university-venus/chocolate-and-peanut-butter>

**Rossmann, J.S.** (2008) Built to spec: the vaginal speculum as a case study of inadequate design, *Ambidextrous* **10**: 47-49.

**Rossmann, J. Stroud** (2001) Why do jets leave white trails in the sky? *Scientific American* online, Nov. 19, 2001; reprinted in *Scientific American's Ask the Experts*, Collins Reference, 2003.

#### CONFERENCE PROCEEDINGS

**Rossmann, J.S** and Armstrong, M.A. (2021) "A new way of seeing": Engagement with Women's and Gender Studies fosters engineering identity formation. Proceedings of the 129th Annual ASEE Conference & Exposition, (virtual). **BEST CONFERENCE PAPER Award**

**Rossmann, J.S.**, Sanford, K.L., and Cohen, B.R. (2021) "Asking 'why' instead of 'how'": Outcomes of an interdisciplinary Degree Program in Engineering Studies. Proceedings of the 129th Annual ASEE Conference & Exposition, (virtual).

Koh, R.S. and **Rossmann, J.S.** (2021) Strategic Disruptions Toward a More Liberatory Engineering Education. Proceedings of the 129th Annual ASEE Conference & Exposition, (virtual).

**Rossmann, J.S.**, Sanford, K.L., Nicodemus, J.N., and Cohen, B.R. (2020) The socio-technical core curriculum: An interdisciplinary Engineering Studies degree program, *Proceedings of the 128th Annual ASEE Conference & Exposition*, Montreal (virtual).

**Rossmann, Jenn Stroud** and Stewart-Gambino, H. (2019) Cornerstone Design for Sociotechnical Grand Challenges, *Proceedings of the 127th Annual ASEE Conference & Exposition*, Tampa.

Sanford Bernhardt, K.L., and **Rossmann, J.S.** (2019) An Integrative Education in Engineering and the Liberal Arts: An Institutional Case Study, *Proceedings of the 127th Annual ASEE Conference & Exposition*, Tampa.

**Rossmann, J.S.**, Hoida, B., Mun, N., Gunther, TB, and Farmer, R. (2019) Whatever happened to class? Writing about and across socioeconomic difference, Panel presentation, AWP, Portland, Oregon.

Chen, Z. and **Rossmann, Jenn Stroud**, (2018) CFD Analysis of Flow Patterns in Human Respiratory System, *Proceedings of American Society of Biomechanics East Cost Meeting*, Penn State.

**Rossmann, Jenn Stroud**, and Roth, Mary J.S. (2017) A classification system for integrative engineering education, *Proceedings of the 125th Annual ASEE Conference & Exposition*, Columbus.

**Rossmann, Jenn Stroud** & Stewart-Gambino, H. (2016) Integration: Defining the value of the “hard to measure”; and Cornerstone Multidisciplinary Design, *Union College Symposium on Engineering and Liberal Education*, Schenectady, New York

Hoida, B., **Rossmann, J.S.**, Prado, R., Gelman, S., and González, L. (2016) People are afraid to merge in Los Angeles, Panel presentation, AWP, Los Angeles.

**Rossmann, Jenn Stroud**; Dym, Clive L; Bassman, Lori C. (2015) Starting with the a-ha: An integrated introduction to solid and fluid mechanics, *Proceedings of the 122th Annual ASEE Conference & Exposition*, Seattle.

**Rossmann, J.S.** (2014) An integrated introduction to the mechanics of solids and fluids: Continuum mechanics as the first mechanics course, APS Division of Fluid Dynamics, San Francisco CA, Nov. 23-25, 2014.

Cohen, B.R., **Rossmann, J.S.**, and Sanford Bernhardt, K.L. (2014) Introducing engineering as a socio-technical process, *Proc. ASEE Annual Conference*, Indianapolis.

**Rossmann, J.S.**, Albert, S.\*, and Balaban, R. (2013) Renal hemodynamics: The influence of the renal artery ostium flow diverter, APS Division of Fluid Dynamics, Pittsburgh PA, Nov. 24-26, 2013.

**Rossmann, J.S.** (2013) Seminar in flow visualization at Lafayette College: Variations on the Hertzberg Effect, APS Division of Fluid Dynamics, Pittsburgh PA, Nov. 24-26, 2013.

Albert, S.\*, **Rossmann, J.S.**, and Balaban, R. (2013) Simulation of blood flow in the renal artery: influence of ostium diverter, *ASME Summer Bioengineering Conference*, Sunriver, Oregon.

Clark, A.\* and **Rossmann, J.S.** (2012) Effect of asymmetric branching on respiratory flow and pressure losses: implications for asthma, *ASME Summer*

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\* Undergraduate co-author

*Bioengineering Conference Proceedings*, Fajardo, Puerto Rico.

Buchan, G.\* and **Rossmann, J.S.** (2011) Quantifying Confidence Envelopes for Efficiency Values in the SR-30 Turbojet Engine, *ASME International Mechanical Engineering Congress Proceedings*, Denver.

**Rossmann, J.S.** (2011) Toward improved models for hemodynamics in stenotic vessels: PIV and CFD results including turbulence and compliance, *ASME Summer Bioengineering Conference Proceedings*, Farmington, Pennsylvania.

**Rossmann, J.S.**, Sanford Bernhardt, K., and Smith, J.H. (2011) Engineering as a second language, *Union College Symposium on Engineering and Liberal Education*, Schenectady, New York.

**Rossmann, J.S.** (2010) Hemodynamics in stenotic vessels: synthesis of CFD and PIV results, *APS Division of Fluid Dynamics*, Long Beach, California.

**Rossmann, J.S.** and Skvirsky, K. (2010) You don't need a weatherman to know which way the wind blows, *ASEE/IEEE Frontiers in Education*, Washington, DC.

**Rossmann, J.S.** (2010) A continuum approach to introductory biomechanics, *ASME Summer Bioengineering Conference Proceedings*, Naples, Florida.

**Rossmann, J.S.** (2010) Engineering America, *Union College Symposium on Engineering and Liberal Education*, Schenectady, New York.

**Rossmann, J.S.** and Skvirsky, K. (2010) You don't need a weatherman, ASEE Mid-Atlantic Regional Conference, Easton. **Best Paper Award.**

Guswa, A., Klein, J.D., Krupczak, J., **Rossmann, J.S.**, Baker, I., and Traver, C. (2010) Engineering and Liberal Education, Panel presentation, *American Association of Colleges & Universities* annual meeting, Washington, D.C.

Stolfi, C.\* and **Rossmann, J.S.** (2009) Biomechanics of glaucoma: parametric study of flow in Schlemm's canal, *ASME International Mechanical Engineering Congress Proceedings*, Orlando, Florida.

Cummins, M.\* and **Rossmann, J.S.** (2009) Numerical simulation of blood flow in patient-specific carotid bifurcation geometries, *ASME International Mechanical Engineering Congress Proceedings*, Orlando, Florida.

**Rossmann, J.S.** and Skvirsky, K. (2009) The art and science of flow visualization, *Union College Symposium on Engineering and Liberal Education*, Schenectady, New York.

**Rossmann, J.S.**, Dym, C.L., and Bassman, L.C. (2008) An integrated introduction to engineering mechanics: A continuum approach, *ASME International Mechanical Engineering Congress Proceedings*, Boston.

**Rossmann, J.S.** and Fisher, C.\* (2008) Influence of non-Newtonian models on simulation of aneurysm hemodynamics, *ASME Summer Bioengineering Conference Proceedings*, Marco Island, Florida.

**Rossmann, J.S.**, Rau, A.C.\*, and Utela, B.\* (2007) Experimental determination of elastomechanical properties of bovine veins, *Proceedings of the 2<sup>nd</sup> International Conference on Mechanics of Biomaterials and Tissues*, Elsevier, Kauai, Hawaii.

Utter, B.\* and **Rossmann, J.S.** (2006) Influence of shape on saccular aneurysm hemodynamics and risk of rupture, *Proceedings of the IEEE 32<sup>nd</sup> Annual*

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\* Undergraduate co-author

*Northeast Bioengineering Conference*, Easton, PA: 21-22.

**Rossmann, J.S.** and Dym, C.L. (2004) Continuum mechanics as the first mechanics course, *Proc. 2004 ASEE Annual Conference*, Salt Lake City.

**Rossmann, J.S.**, MacVicar, S.\*, and Huynh, S.\* (2003) Numerical simulation of aneurysm hemodynamics, *APS Division of Fluid Dynamics*, East Rutherford.

Jemmott, C.\*, Logan, S.\*, Utvich, A.\*, and **Rossmann, J.S.** (2003) Experimental investigation of the aerodynamic forces on a curveball, *APS Division of Fluid Dynamics*, East Rutherford.

Utvich, A.\*, Jemmott, C.\*, Logan, S.\*, and **Rossmann, J.S.** (2003) Aerodynamics of Wiffle balls, *APS Division of Fluid Dynamics*, East Rutherford.

Hsu, Y.H.\*, Stratton, C.M. \*, Schauer, J.M. \*, Utvich, A.\*, and **Rossmann, J.S.** (2003) Design and construction of a new subsonic wind tunnel, *ASME International Mechanical Engineering Congress Proceedings*, Washington, D.C. **First Prize**, Young Engineers Paper Contest.

Berger, S.A., **Stroud, J.S.**, and Rayz, V. (2001) Hemodynamic simulations of flow in normal and stenotic carotid arteries, *ASME Congress Proceedings, Advances in Bioengineering* BED-Vol. 51.

Lorthois, S., **Stroud, J.S.**, Berger, S.A., Jou, L.D. and Saloner, D. (2001) Numerical simulation of time of flight (TOF) magnetic resonance angiographies of severely stenotic carotid artery bifurcations with realistic shapes, *Proc. International Society of Biomechanics, XVIIIth Congress*, Zurich.

Berger, S.A. and **Stroud, J.S.** (2001) Flow in sclerotic carotid arteries, *First MIT Conference on Computational Fluid and Solid Mechanics, Proceedings*, Elsevier.

Jou, L.D., **Stroud, J.**, Berger, S.A., Saloner, D. (2000) The effects of injection profiles on carotid contrast-enhanced MRA, *Eighth Scientific Meeting of International Society for Magnetic Resonance in Medicine, Proc.*, Denver.

Berger, S.A. and **Stroud, J.S.** (2000) Flow in stenotic vessels, *APS Division of Fluid Dynamics*, Washington, D.C.

**Stroud, J.S.** and Berger, S.A. (2000) Numerical simulation of blood flow in the severely stenotic carotid artery bifurcation, *IUTAM 2000*, Chicago.

Berger, S.A. and **Stroud, J.S.** (2000) Flow in the atherosclerotic carotid artery, *ASME Congress Proceedings, Mechanics in Biology*, Casey, J. and Bao, G., Editors, AMD-Vol. 242/BED-Vol. 46: 99-112.

**Stroud, J.S.** and Berger, S.A. (1999) Numerical simulation of blood flow in the stenotic carotid artery bifurcation, *APS Division of Fluid Dynamics*, New Orleans.

**Stroud, J.S.** and Berger, S.A. (1998) Simulation of flow in stenosed blood vessels, *APS Division of Fluid Dynamics*, Philadelphia.

**Stroud, J.S.** and Berger, S.A. (1997) Numerical simulation of blood flow in the mildly stenotic carotid artery bifurcation, *APS Division of Fluid Dynamics*, San Francisco.

## BOOK REVIEWS

"An Engineer Reads a Novel" essay series for Public Books, including:  
*Soulful, Perhaps Even Magical*, *Science*, December 1, 2020

<https://www.publicbooks.org/soulful-perhaps-even-magical-science/>

*Dead Cosmonauts*, *Space Cowboys*, February 19, 2020

<https://www.publicbooks.org/dead-cosmonauts-space-cowboys/>

*Ted Chiang: Realist of a Larger Reality*, July 19, 2019  
<https://www.publicbooks.org/ted-chiang-realist-of-a-larger-reality/>

*The Rubble of Creation*, June 12, 2019  
<https://www.publicbooks.org/the-rubble-of-creation/>

*The Pinsetter's Lament*, January 30, 2019  
<https://www.publicbooks.org/the-pinsetters-lament/>

*In the Desert You Can't Remember Your Name*, November 13, 2018  
<https://www.publicbooks.org/in-the-desert-you-cant-remember-your-name/>

*Turning History Inside Out*, September 13, 2018,  
<https://www.publicbooks.org/turning-history-inside-out/>

*Unsex the Lab*, July 17, 2018  
<https://www.publicbooks.org/unsex-the-lab/>

*Famous and Unfamous Feminists*, May 1, 2018  
<https://www.publicbooks.org/famous-and-unfamous-feminists/>

*The Shape of Power Is Always the Same*, Feb. 2018  
<https://www.publicbooks.org/the-shape-of-power-is-always-the-same/>

*Robot and Juliet*, Public Books, November 27, 2017  
<http://www.publicbooks.org/robot-and-juliet/>

*Good with Her Hands*, Public Books, October 2, 2017  
<http://www.publicbooks.org/good-with-her-hands/>

*Even Broken History Is History*, Public Books, July 17, 2017  
<http://www.publicbooks.org/even-broken-history-is-history/>

*Science and the Wolf*, Public Books, April 19, 2017.  
<http://www.publicbooks.org/science-and-the-wolf/>

*Who Builds Anything in this Country?*, Public Books, October 12, 2016.  
<http://www.publicbooks.org/who-builds-anything-in-this-country/>

*Westward the Course of Empire Takes Its Way*, Public Books, September, 2016.  
<http://www.publicbooks.org/blog/westward-the-course-of-empire-takes-its-way>

*Prophecy in Future Perfect*, Public Books, July, 2016.  
<http://www.publicbooks.org/blog/prophecy-in-future-perfect>

*Too Bad About the Trees*, Public Books, June, 2016.  
<http://www.publicbooks.org/blog/too-bad-about-the-trees>

*The New York Values of City on Fire*, Public Books, February 6, 2016.  
<http://www.publicbooks.org/blog/the-new-york-values-of-city-on-fire>

*Technological Citizenship and the End of the World*, Public Books, Jan. 4, 2016.  
<http://www.publicbooks.org/blog/technological-citizenship-at-the-end-of-the-world>

Other book reviews:

*Athena's Daughters*, Kathleen Kennedy and Frances Early, eds., *Women's Studies: An Interdisciplinary Journal*, Vol. 33: 341-344 (2004).

*Fatal Women of Romanticism*, by Adriana Craciun, *Women's Studies: An Interdisciplinary Journal*, Vol. 32: 1111-1114 (2003).

*Time Lord*, by Clark Blaise, *San Francisco Chronicle*, 13 May 2001

*The Science of UFOs*, by William Alschuler, *San Francisco Chronicle*, 8 April 2001

## FICTION

"In Order of Appearance," HAD, June 2020  
"That's the Exact Opposite of What I Wanted," in *What I Thought of Wasn't Funny* anthology, October 2020  
"Island Time," *Pithead Chapel*, January 2020 **Pushcart Prize Nominee**  
*The Place You're Supposed to Laugh*, A novel, 7.13Books, Brooklyn NY, 2018  
"In Patient," *X-RAY Lit*, March 2019  
"Work/Life Balance," *Hobart*, July 2018  
"Thank you for helping us serve you better," *Bending Genres*, June, 2018  
"Table for Two," *JMWW*, December 2017 **Best Small Fictions Nominee**  
"The Disaster Specialist," *CHEAP POP*, July 2017  
"Non-Stick," *Literary Orphans*, July 2016  
"Don't Shake Hands on the Bandstand," *Jellyfish Review*, July 2016  
"The Place You're Supposed to Laugh," *Indianola Review*, Dec. 2015, **Pushcart Prize Nominee**  
"Ladies & Gentlemen, the Invincibles" in *Tahoma Literary Review*, Dec. 2014, **Pushcart Prize Nominee**  
"Recycling," in *Night Train*, online September 2014 and print, March 2015  
"Oh So High" in *dislocate*, March 2014, **Pushcart Prize Nominee**  
"I Cover the Rest" in *Cobalt Review*, December 2011  
"All-American" in *Failbetter*, March 2010, **Pushcart Prize Nominee**  
"Re-think" in *Readymade*, March 2004  
"Geeks" in *The MacGuffin*, July 2003  
"How to Be the Bigger Person" in *Surgery of Modern Warfare*, Feb. 2003  
"Cast of Characters" in *Pindeldyboz*, November 2002  
"How to Seem Smarter" in *Readymade*, January 2002  
"The Disaster Specialist" in *Ashby Ave.* anthology, Fall 2001  
"Near the Highway" in *Red Rock Review*, Winter 2001  
"Enjoy Yourself" in *Ibid*, Spring 1999

## MEDIA INTEREST

Interviewed regarding aerodynamics of Wiffle ball and baseball for:

- NPR Short Wave podcast, April 2020
- *The Ringer*, August 2019
- *Popular Science* magazine, April 2014; April 2015
- *Wired* magazine, March 2011.
- *Morning Call* newspaper, October 10, 2010. Article reprinted in *Los Angeles Times*, October 24, 2010; *Washington Post*, November 21, 2010; and other newspapers.
- *Wiffle Ball: The Ultimate Guide*, by Michael Hermann, Triumph Books, April, 2010.
- Documentary film *Yard Work*, HMP Films, 2009. Debuted NESN October 25, 2009.

## INVITED TALKS

Mechanics Seminar, University of Wisconsin, November 15, 2019.  
James River Writers Conference, October 11-13, 2019.  
Art and Science of Fluid Mechanics, Mechanical Engineering Seminar, University of Toronto, December 1, 2017.



Often asserted, rarely measured: The value of integrating humanities, arts, and STEM learning, with Hannah Stewart-Gambino, National Academies of Science and Engineering, December 2, 2015.

Modeling cardiovascular flow: atherosclerosis & aneurysm, Mechanical Engineering Seminar, Santa Clara University, March 19, 2012.

Hemodynamics in diseased vessels, Bioengineering Seminar, Pennsylvania State University, November 2, 2011.

Blood flow and baseball: Research in fluid mechanics, The Cooper Union for the Advancement of Science and Art, March 31, 2005.

Engineering and the liberal arts; and Blood flow and baseball, Smith College, Engineering seminars, March 4, 2005.

Science in fiction, Invited Panelist, *Contamination: Sites of Contagion, Transgression and Transformation*, conference hosted by University of Southern California department of English, February 28, 2003.

Keep your eye on the ball: Aerodynamics of sports balls, Stauffer Speaker Series, Harvey Mudd College, June 6, 2002; Claremont Rotary, Oct. 1, 2002.

Numerical and experimental analyses of blood flow in the stenotic carotid bifurcation, Beckman Laser Institute, U.C. Irvine, March 1, 2002.

Numerical simulation of blood flow in stenotic vessels, Stanford University, Biomechanical Engineering Seminar, May 8, 2000.

A numerical approach to the equations of blood flow and MRI, Noetherian Ring, Berkeley, April 24, 1997.

**RESEARCH  
SUPPORT**

MRI: Acquisition of laser flow measurement instrumentation for fluid mechanics research, National Science Foundation, August 2010, CBET-1040236, \$193,519. (Co-PI)

Acquisition of PIV system for study of biological flows, National Science Foundation, August 2006, CTS-0618923, \$139,530. (PI)

Acquisition of high-speed camera and instrumentation for flow visualization and measurement, National Science Foundation, August 2003, CTS-0552104, \$126,515. (PI)

Numerical simulation of aneurysm hemodynamics, Keck Quantitative Life Sciences Grant, May 2003, \$9,300. (PI)

Barbara Stokes Dewey endowed Assistant Professorship of Life Sciences, Harvey Mudd College, June 2002-June 2004.

**ORGANIZATIONS**

Sigma Xi (2000) • Phi Beta Kappa • Tau Beta Pi  
American Physical Society  
American Society of Mechanical Engineers  
American Society for Engineering Education  
Council on Undergraduate Research

**PROFESSIONAL  
ACTIVITY**

ASEE LEES Division Program Chair-Elect, July 2021-  
"Race and Technology" workshop at Brooklyn Institute for Social Research, with  
Danya Glabau, June-July 2020  
Panelist, NSF BMMB Review, May 2020

Invited panelist, NAE Workshop “Liberal Studies in Engineering,” Washington DC, January 2015  
 Panelist, NSF GSRFP Review, January 2015  
 Consultant, Hasbro/Nerf projectile design & testing, January 2015-present.  
 Invited participant, ICERM Workshop “Emerging Challenges for Cardiovascular Mathematics,” Brown University, January 2014.  
 Panelist, NSF RIGEE Proposal Review, June 20-21, 2013.  
 Judge, Student Poster Competition, ASME Summer Bioengineering Conference, June 20-23, 2012.  
 Session Chair, APS Division of Fluid Dynamics, November 21-24, 2010.  
 Session Organizer, ASME International Mechanical Engineering Congress, November 12-18, 2010.  
 Judge, Student Poster Competition, ASME Summer Bioengineering Conference, June 16-19, 2010.  
 Session Organizer and Session Chair, ASME International Mechanical Engineering Congress, November 13-19, 2009.  
 Technical Committee member and Session Chair, IEEE Northeast Bioengineering Conference, April 1-2, 2006.  
 Invited participant, Teaching and Scholarship in the Grand Tradition of Modern Engineering, Princeton University, August 2005.  
 Panelist, NSF MRI Proposal Review, April 29-30, 2004; May 6, 2005.  
 Reviewer, *SIAM Review*, 2004-. *Journal of Fluids Research*, 2006-. *Journal of Biomechanics*, 2007-. *Experiments in Fluids*, 2007-. *Experimental Techniques*, 2008-. *International Journal for Numerical Methods in Biomedical Engineering*, 2010-. *Journal of Engineering in Medicine*, 2010-. *Journal of Fluids Engineering*, 2010-. *Experimental Mechanics*, 2010-. *Journal of the Royal Society Interface*, 2011-. *Journal of Sports Engineering*, 2014-. *Journal of Non-Newtonian Fluid Mechanics*, *Interface Focus* 2017-.  
 NSF New Century Scholars Workshop, Stanford University, August 2002.

**COLLEGE SERVICE  
(SELECTED)**

Search Committee for 18<sup>th</sup> President of Lafayette College, 2020-2021  
 Department Head of Mechanical Engineering (2012-2017 and 2018-2019)  
 Chair, Governance Committee (2015-2016)  
 Director (Co-director, 2016-2019), Inclusive STEM Initiative (2016-present)  
 Elected to Promotion, Tenure Review (2018-present), Governance (2013-2016), Faculty Academic Policy (2012-2013), Diversity (2009-2012), and Curriculum and Educational Policy (2006-2009) Committees  
 Appointed by Provost to Advisory Board for Engineering Studies A.B. Program, 2006-2007 and 2009-2014  
 Appointed by Provost to Advisory Board for Life Sciences, 2010-2013  
 Advisory Board for Center for Innovation, Design, Entrepreneurship, & Leadership, 2017-2019  
 Search Committees for Physics (2), Mechanical Engineering (1), Engineering Studies (2), and International Affairs (1) faculty searches; Chaired five (5) ME visitor searches  
 Search Committee for Vice President for Campus Life and Diversity  
 Chair, Mechanical Engineering Department Committee for Ethics Education  
 Graduate Advisor for Mechanical Engineering undergraduates, 2006-2014  
 President, Phi Beta Kappa selection committee, 2009-2013  
 Co-coordinator, Interdisciplinary Seminar Series in the Life Sciences, 2006-2010  
 Faculty mentor for Marquis Scholars, 2010-2013  
 Steering committee for Grand Challenges Scholars Program, 2009-present

**UNDERGRADUATES  
MENTORED**

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|---|--|---------------------------|-----|
| Remziye Erdogan<br><i>Now at U Virginia</i>                                 | Modeling transport in the placenta:<br>Hydrogels and CFD   | Summer 2018,<br>2019-2020 | LC  |
| Sarah Johnson   | Hemodynamics in stenotic vessels   | Summer 2018               | LC  |
| Zishen (Gary) Chen  | Design of self-stabilizing helicopter  | 2018-2019                 | LC  |
| Zishen (Gary) Chen<br><i>Now at UC Berkeley</i>                             | Respiratory biomechanics   | Summer 2017,<br>2018      | LC  |
| Siping (Spring) You<br><i>Now at Dartmouth</i>                              | Respiratory biomechanics   | 2015-2016                 | LC  |
| Robert Maber  | Respiratory biomechanics   | Summer 2015               | LC  |
| Scott Albert (ChemE)<br><i>Now at Johns Hopkins</i>                         | Renal artery hemodynamics  | 2012-2013                 | LC  |
| Kate Yoder<br><i>MS U Wisconsin</i>   | Aerodynamics of the flying gyroscope   | 2012-2013                 | LC  |
| Luna Yuan   | Solar heating for L9W New Orleans: Joint<br>thesis, ME and Policy Studies  | 2011-2012                 | LC  |
| Taimoor Sohail<br><i>Now at Australian Natl Univ</i>                        | Renal artery hemodynamics  | January 2012              | LC  |
| Peter Sun   | Wiffle aerodynamics & renal<br>hemodynamics  | Summer 2011               | LC  |
| Luna Yuan   | Renal artery hemodynamics  | 2011                      | LC  |
| Alicia Clark<br><i>PhD, Washington, 2018</i>                                | Respiratory biomechanics   | 2010-2011                 | LC  |
| Greg Buchan   | Gas turbine engine investigation   | Summer and Fall<br>2010   | LC  |
| Hallie Zeller<br><i>Now at Brown</i>  | PIV in stenotic vessels  | Summer 2010               | LC  |
| Chak Man Chan   | Aerodynamics of badminton shuttlecock  | 2009-2010                 | LC  |
| Naomi Itescu<br>Tyler Sossong (Neurosci)                                    | PIV in stenotic vessels<br>(patient-specific stenoses)   | 2009-2010                 | LC  |
| Ryan King (CS)  | Hemodynamics simulations<br>(wall motion)  | Summer 2009 -<br>Present  | LC  |
| Ming Hong   | PIV in stenotic vessels  | Summer 2009 -<br>Present  | LC  |
| Megan Cummins (Biology)<br><i>MD/PhD Mt. Sinai, 2013</i>                    | Hemodynamics simulations<br>(patient-specific stenoses)  | 2008-2009                 | LC  |
| Carolyn Stolfi<br><i>MS Purdue, 2011</i>                                    | Biomechanics of glaucoma   | 2007-2009                 | LC  |
| Andrew Rau<br><i>MS Penn State, 2010</i>                                    | PIV in stenotic vessels<br>Wiffle ball aerodynamics experiments  | 2007-2008<br>Summer 2006  | LC  |
| Mary Kate Erdman<br><i>MD Florida, 2014</i>                                 | Design of ovarian cystectomy device  | 2007-2008                 | LC  |
| Emily Egge  | Hemodynamics simulations (stents)  | 2006-2007                 | LC  |
| Carolyn Fisher<br><i>MS Columbia, 2008</i>                                  | Hemodynamics simulations<br>(non-Newtonian effects in aneurysms)   | Summer 2006,<br>2006-2007 | LC  |
| Brent Utter<br><i>PhD Michigan, 2010</i>                                    | Hemodynamics simulations<br>(aneurysms)  | Summer 2005,<br>2005-2006 | LC  |
| Timothy Nish<br><i>MS Lehigh</i>  | Flow visualization in stenotic vessels   | 2005-2006                 | LC  |
| Catherine Herchenroder  | Redesign of vaginal speculum   | 2005-2006                 | LC  |
| One Kim<br>Ephraim Lansford<br>Josiah Larson<br>Tristan Sharp<br>Jay Wright | Effect of reduced gravity on bubble-slug<br>flow transition Team of undergraduates<br>selected to perform experiments on NASA's<br>KC-135 <i>Vomit Comet</i> ; flight dates July 8-17, | 2003-2004                 | HMC |

2004.

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|---|--|-------------------|-----|
| Jacob Pinheiro<br>Alex Cohan  | Development of undergraduate aerodynamics laboratory   | 2003-2004         | HMC |
| Ben Utela<br><i>MS Washington, 2009</i>   | Material testing of bovine veins   | Summer 2003       | HMC |
| David Greisen(Physics)  | Design and feasibility study of novel blood testing instruments  | Spring- Fall 2003 | HMC |
| Jocelyn Wong (Chemistry)  | Measurement of blood flow through a prosthetic check socket  | Summer 2003       | HMC |
| Stephen MacVicar<br>Sophia Huynh  | Hemodynamics simulations (aneurysms)   | Summer 2003       | HMC |
| Alexis Utvich<br>Colin Jemmott<br><i>Ph.D. Penn State, 2010</i><br>Sheldon Logan<br><i>Ph.D. UCSC, 2013</i> | Wind tunnel experiments: flow over rotating spheres<br><br><b>Excellent Presentation Award</b> , Sigma Xi Student Research Conference, 2003. | Summer 2003       | HMC |
| Erin Koos<br><i>Ph.D. Caltech, 2009</i>   | Instrumentation of wind tunnel   | Spring 2003       | HMC |
| Judy Hsu<br><i>Ph.D. Stanford, 2009</i><br>Christina Stratton<br>Justin Schauer<br><i>MS Stanford, 2009</i> | Design and construction of subsonic wind tunnel  | Summer 2002       | HMC |