

Kenneth S. Breuer

School of Engineering, Brown University

Providence, RI 02912

Tel: (401) 863-2870

Email: kbreuer@brown.edu

<https://sites.brown.edu/BreuerLab>

Education

- 6/88 Ph.D. Department of Aeronautics & Astronautics. MIT. Thesis title: “The evolution of a localized disturbance in a laminar boundary layer”. (Supervised by M.T. Landahl, J.H. Haritonidis & S.E. Widnall)
- 9/84 MS. Department of Aeronautics & Astronautics. MIT. (Supervised by J.H. Haritonidis).
- 6/82 Sc.B (Magna cum Laude, with Honors). Division of Engineering, Brown University, Concentration in Fluids and Thermal Sciences.

Professional appointments

- 7/06 - Professor of Engineering, Brown University, Providence RI.
- 7/11 - Professor of Ecology and Evolutionary Biology (courtesy), Brown University, Providence RI
- 10/11 –7/14 Senior Associate Dean for Academic Programs. School of Engineering, Brown University, Providence RI
- 9/99 - 6/06 Associate Professor, Division of Engineering, Brown University, Providence RI.
- 7/98 – 9/99 Principal Research Scientist. Department of Aeronautics & Astronautics. Massachusetts Institute of Technology, Cambridge, MA 02139.
- 7/96 – 6/98 Harold & Esther Edgerton Associate Professor. Department of Aeronautics & Astronautics, Massachusetts Institute of Technology, Cambridge, MA 02139.
- 9/90 - 6/96 Assistant Professor. Department of Aeronautics & Astronautics, Massachusetts Institute of Technology, Cambridge, MA 02139
- 9/88 - 9/90 Post Doctoral Research Associate. Division of Applied Mathematics, Brown University, Providence RI 02912.
- 9/84 - 9/85 Mathematics and Computing Teacher. Nightingale-Bamford School, New York NY.

Publications

Books and volumes authored or edited

1. Application of Microfabrication to Fluid Mechanics. FED 197. Edited by P.R. Bandyopadhyay, K.S. Breuer & C.J. Blechinger. ASME, 1994.
Application of Microfabrication to Fluid Mechanics. Edited by K.S. Breuer, P.R. Bandyopadhyay, & M. Gad-el-Hak. ASME, November 1996.

2. Application of Microfabrication to Fluid Mechanics. Edited by F. Forster, K.S. Breuer & P.R. Bandyopadhyay. ASME, November 1998.
3. Microfluidics 1999. Edited by F. Forster, K.S. Breuer & P.R. Bandyopadhyay. ASME, November 1999.
4. Multimedia Fluid Mechanics. Homsy. G. Aref, H., Breuer, K., Hochgreb, S., Powell, K., Munson, B., Robertson, C., Cambridge University Press May 2000.
5. Microfluidics 2000. K.S. Breuer (editor), ASME November 2000
6. Microfluidics 2001. K.S. Breuer (editor), ASME November 2001
7. Microfluidics 2002. K.S. Breuer (editor), ASME November 2002
8. Microfluidics 2003. K.S. Breuer (editor), ASME November 2003
9. A Gallery of Fluid Motion. Saminy, M., Breuer, K.S., Leal, G. & Steen, P. (editors). Cambridge University Press, 2003.
10. Microscale Diagnostic Techniques. K S. Breuer (editor). Springer-Verlag 2004.
11. Multimedia Fluid Mechanics, Volume II. G. M. Homsy, H. Aref, K. S. Breuer, John W. M. Bush, Christophe Clanet, Marc Fermigier, Simone Hochgreb, J. R. Koseff, B. R. Munson, K. G. Powell, David Quere, J. J. Riley, C. R. Robertson, A. J. Smits, S. T. Thoroddsen, J. M. Wallace Cambridge University Press (2008).

Chapters in books

1. Janson, S., Helvajian, H. & Breuer, K.S. "MEMS-based propulsion systems". in Microengineering for Aerospace Systems. Ed. H. Helvajian. Aerospace Press 1999.
2. Bayt, R.L. & Breuer, K.S. "Fabrication and Testing of Cold Gas Microthrusters". In Micropropulsion for Small Spacecraft – Progress in Astronautics and Aeronautics Vol 187. Ed. M. Micci & A. Ketsdever. AIAA Press 2000.
3. Breuer, K.S. "Lubrication in MEMS", In CRC Handbook on MEMS. Ed. M. Gad-el-Hak. CRC Press, 2001.
4. Breuer, K. S. "Challenges for Lubrication in High Speed MEMS". In Nanotribology. Ed. S Hsu. Kluwer Press. 2002.
5. Breuer, K.S. "Design, Fabrication and Performance of MEMS Actuators for Flow Control". in Flow control and MEMS von Karman Institute Lecture Series. 2002. VKI. St Genevive, Belgium.
6. Breuer, K.S. "Lubrication in MEMS", In CRC Handbook on MEMS (Second Edition) Ed. M. Gad-el-Hak. CRC Press, 2005.
7. Breuer, K.S. "Lorentz Force Control of Turbulence". In Advances in Turbulence, World Scientific Press 2005.
8. Guasto J., Huang, P. and Breuer, K.S. "Evanescent Wave Measurements". In Encyclopedia of Micro and Nano-fluidics. Springer-Verlag 2007.
9. Guasto, J, Huang, P and Breuer, K.S. "Evanescent Wave Measurements" in Encyclopedia of Microfluidics. Springer-Verlag (2008).
10. Breuer, K.S. "Micro-Rockets" in Encyclopedia of Microfluidics. Springer-Verlag (2008).
11. Swartz, S. M., Iriarte-Díaz, J., Riskin, D. K., and K. S. Breuer. "A bird? A plane? No, it's a bat: an introduction to the biomechanics of bat flight". in: Gunnell, G. F., and Simmons, N. B., Editors: Evolutionary history of bats: Fossils, molecules, and morphology. Cambridge University Press (2012).
12. Huang, P and Breuer, KS & Guasto, J., "Evanescent Wave Measurements" in Encyclopedia of Microfluidics (Second edition). Springer-Verlag (2015).

13. Breuer, K.S. "Microrockets". In Encyclopedia of Micro and Nano-fluidics (Second Edition). Springer-Verlag 2015.

Refereed journal articles

1. M Landahl, K Breuer, and J Haritonidis. (1987). Transients and waves in boundary layer transition. *Nonlinear Wave Interact. Fluids*, pages 17--21.
2. R Lueptow, K Breuer, and J Haritonidis. (1988). Computer-aided calibration of x-probes using a look-up table. *Exp. Fluids*, **6** (2) pp. 115--118. [\[doi\]](#).
3. K Breuer, J Haritonidis, and M Landahl. (1989). The control of transient disturbances in a flat-plate boundary layer through active wall motion. *Phys. Fluids -Fluid Dyn.*, **1** (3) pp. 574--582. [\[doi\]](#).
4. K Breuer and J Haritonidis. (1990). The evolution of a localized disturbance in a laminar boundary layer. 1 Weak disturbances. *J. Fluid Mech.*, **220** pp. 569--594. [\[doi\]](#).
5. K Breuer and M Landahl. (1990). The evolution of a localized disturbance in a laminar boundary layer. 2 Strong disturbances. *J. Fluid Mech.*, **220** pp. 595--621. [\[doi\]](#).
6. KS Breuer, JH Haritonidis, and J Cohen. (1991). The late stages of transition for a wave packet in a laminar boundary layer. *Bound. Layer Stab. Transit. Turbul.*, pages 115--122.
7. K Breuer and L Sirovich. (1991). The use of the Karhunen-Loeve procedure for the calculation of linear eigenfunctions. *J. Comput. Phys.*, **96** (2) pp. 277--296. [\[doi\]](#).
8. J Cohen, K Breuer, and J Haritonidis. (1991). On the evolution of a wave packet in a laminar boundary layer. *J. Fluid Mech.*, **225** pp. 575--606. [\[doi\]](#).
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11. D Henningson, L Gustavsson, and K Breuer. (1994). Localized disturbances in parallel shear flows. *Appl. Sci. Res.*, **53** (1-2) pp. 51--97. [\[doi\]](#).
12. PL OSullivan and KS Breuer. (1994). Transient growth in circular pipe flow. I. Linear disturbances. *Phys. Fluids*, **6** (11) pp. 3643--3651.
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14. K Breuer. (1995). Stochastic calibration of sensors in turbulent flow fields. *Exp. Fluids*, **19** (2) pp. 138--141. [\[doi\]](#).
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25. E Piekos and K Breuer. (1999). Pseudospectral orbit simulation of nonideal gas-lubricated journal bearings for microfabricated turbomachines. *J Tribol.*, **121** (3) pp. 604--609. [\[doi\]](#).
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35. E Piekos and K Breuer. (2002). Manufacturing effects in microfabricated gas bearings: Axially varying clearance. *J Tribol. - Trans. ASME*, **124** (4) pp. 815--821. [\[doi\]](#).
36. CH Choi, KJA Westin, and KS Breuer. (2003). Apparent slip flows in hydrophilic and hydrophobic microchannels. *Phys. Fluids*, **15** (10) pp. 2897. [\[doi\]](#).
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53. DK Yi, MJ Kim, L Turner, KS Breuer, and DY Kim. (2006). Colloid lithography-induced polydimethylsiloxane microstructures and their application to cell patterning. *Biotech. Lett.*, **28** (3) pp. 169--173. [\[doi\]](#).
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57. GD Jay, JR Torres, ML Warman, MC Laderer, and KS Breuer. (2007). The role of lubricin in the mechanical behavior of synovial fluid. *Proc. Natl. Acad. Sci.*, **104** (15) pp. 6194--6199. [\[doi\]](#).
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59. MJ Kim and KS Breuer. (2007). Use of Bacterial Carpets to Enhance Mixing in Microfluidic Systems. *J. Fluids Eng.*, **129** (3) pp. 319--324. [\[doi\]](#).
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20. Peter Huang, Jeffrey Guasto & Kenneth Breuer, "Direct Measurement of Liquid Slip Velocities Using Total Internal Reflection Velocimetry", Presented at the APS.DFD annual meeting, Chicago, IL, Nov. 2005.
21. Maureen McCamley, Charles Henoach & Kenneth Breuer, "Control of Turbulent Shear Flow Structure Using Lorentz Force Actuators", Presented at the APS.DFD annual meeting, Chicago, IL, Nov. 2005.
22. Kim M. and Breuer. K. "Controlled Mixing in Microfluidic Systems using Bacterial Chemotaxis" (Keynote lecture). National Congress on Theoretical and Applied Mechanics, Boulder CO June 2006.

23. Tian, X., Iriarte-Diaz, J., Middleton, K., Galvao, R., Israeli, E., Roemer, A., Sullivan, A, Song, A., Swartz S, and Breuer, K “Aerodynamics of Compliant Membrane Wings Modeled on Mammalian Flight Mechanics”. National Congress on Theoretical and Applied Mechanics, Boulder CO June 2006.
24. Arnold Song, Ricardo Galvao and Kenneth Breuer, “Dynamics of Compliant Membranes Forced by Vortex Shedding”, Presented at the APS.DFD annual meeting, Tampa FL, Nov. 2006.
25. Anthony Zorzos and Kenneth Breuer, “Characteristics and Dynamics of drops emitted from a Taylor cone”, Presented at the APS.DFD annual meeting, Tampa FL, Nov. 2006.
26. Jeffrey Guasto and Kenneth Breuer “ Quantum Dots for Velocity and Thermal Measurements in both Liquid and Gas Microflows” Presented at the APS.DFD annual meeting, Tampa FL, Nov. 2006.
27. Peter Huang and Kenneth Breuer “Measurement and Simulation of Hindered Diffusion and the Implications for Near-Wall Velocimetry”, Presented at the APS.DFD annual meeting, Tampa FL, Nov. 2006.
28. David Willis, Jaime Peraire, Per Olafsson and Kenneth Breuer, “Parametric Dependencies in Aero-Elastic, Articulated, Flapping Flight”. Presented at the APS.DFD annual meeting, Tampa FL, Nov. 2006.
29. Qian Bian, Leila Satayeshgar, Thomas Powers and Kenneth Breuer “Viscous Coordination in Systems of Rotating Flagella” Presented at the APS.DFD annual meeting, Tampa FL, Nov. 2006.
30. SWARTZ, S; BISHOP, K; TIAN, X; SONG, A; ISRAELI, E; GALVAO, R; BISHOP, K; BREUER, K Batty is only skin deep, Presented at the Soc. of Integrative and Comparative Biology. January 2007. Pheonix AZ
31. BISHOP, K.L.SWARTZ S.M.; BREUER, K.; TIAN, X Compliant wings and the evolution of gliding in vertebrates. Presented at the Soc. of Integrative and Comparative Biology. January 2007. Pheonix AZ
32. D.J.Willis, P.-O. Persson, M.Drela, J.Peraire and K.S.Breuer, “A Multifidelity Framework for Modeling Biologically Inspired Flapping Flight”, presented at the 14th International Conference for Finite Elements in Flow Problems, Santa Fe, NM, 2007
33. D.J.Willis, E.Israeli, P.-O. Persson, M.Drela, J.Peraire and K.S.Breuer, “Examining the exploitation of passive structural compliance in flapping wings”, presented at the 4th Massachusetts Institute of Technology Conference on Fluid and Solid Mechanics, 2007
34. Joseph Bahlman, Kenneth Breuer, and Sharon Swartz, Aerodynamic “Importance of Variation of Wing Aspect Ratio in Bats”. International Conference on Vertebrate Morphology, Paris France July 2007.
35. Qian, B, Powers, T.R. and Breuer, K.S. “Shape transition and propulsive force of an elastic rotating in a viscous fluid” A Day of Locomotion. Harvard University. October 2007.
36. Jeffrey Guasto, Brian Schmidt, Michael Lawrence, Kenneth Breuer, Measurement of particle trajectories, dynamics, surface adhesion and detachment in near-wall shear flows using 3D velocimetry Proceedings of APS/DFD Annual Meeting. Salt Lake City, UT. Nov 2007.
37. Charles Peguero, Charles Henoeh, Kenneth Breuer The Effects of Superhydrophobic Surfaces on Turbulent Skin Friction and Flow Structure. Proceedings of APS/DFD Annual Meeting. Salt Lake City, UT. Nov 2007.

38. Arnold Song, Kenneth Breuer Aerodynamics of compliant membrane wings as related to bat and other mammalian flight. Proceedings of APS/DFD Annual Meeting. Salt Lake City, UT. Nov 2007.
39. Bian Qian, Thomas R. Powers & Kenneth S. Breuer Instability of a Rotating Elastic Filament due to Viscous Stresses. Proceedings of APS/DFD Annual Meeting. Salt Lake City, UT. Nov 2007.
40. SWARTZ, SM; WILLIS, DJ; BOWLIN, MS; BREUER, KS. Aeromechanics in the Atmosphere: Where Physics meets Flight Biology in Aeroecology. Annual Meeting of the Society of Integrative and Comparative Biology. San Antonio TX. Jan 2008.
41. RISKIN, D. K.; WILLIS, D. J.; HEDRICK, T. L.; IRIARTE-DIAZ, J.; LAIDLAW, D. J.; BREUER, K. S.; SWARTZ, S. M. Proper orthogonal decomposition of bat flight kinematics. Annual Meeting of the Society of Integrative and Comparative Biology. San Antonio TX. Jan 2008.
42. Hubel, T, Swartz, S and Breuer, K. "Wake structure and wing motion in bat flight". Society of Experimental Biology Annual Meeting, Marseilles, France July 2008.
43. Joseph Wm Bahlman, Kenneth S. Breuer, and Sharon M. Swartz "Size Matters More than How You Use It: Modeling the Effects of Varying Bat Wing Morphology and Kinematics". North American Symposium on Bat Research. Annual Meeting, Scranton PA Oct 2008.
44. Tatjana Y. Hubel, Sharon Swartz and Kenneth Breuer. "The Aerodynamic Flight Pattern of Bats" North American Symposium on Bat Research. Annual Meeting, Scranton PA Oct 2008.
45. Song, A, Tuttmann, M & Breuer, K "Vortex induced motion in compliant structures". APS/DFD Annual Meeting, San Antonio TX. Nov 2008
46. Hubel, T, Breuer, K and Swartz, S. "Wake structure and wing motion in bat flight". APS/DFD Annual Meeting, San Antonio TX. Nov 2008
47. Guasto, J and Breuer K. "High-speed Tracking of Quantum Dots in Microflows using Evanescent Wave Illumination". APS/DFD Annual Meeting, San Antonio TX. Nov 2008
48. Qian, B, Loueiro, M, Tripathi, A and Breuer K. "Micron-scale droplet deposition from a retreating syringe". APS/DFD Annual Meeting, San Antonio TX. Nov 2008
49. Quiry, A, Guasto, J and Breuer K. "Electrospray Droplet Structures Imaged Using Digital Holographic PIV". APS/DFD Annual Meeting, San Antonio TX. Nov 2008.
50. SWARTZ, SM; RISKIN, DK; IRIARTE, J; MIDDLETON, KM; BREUER, KS "Scaling of flight characteristics in bats" Annual Meeting of the Society of Integrative and Comparative Biology. Boston MA. Jan 2009
51. WILLIS, D.J.; RISKIN, D.K.; SWARTZ, S.M.; PERAIRE, J.; BREUER, K.S. "Computational modeling of the aeromechanics of a bat (*Cynopterus brachyotis*)". Annual Meeting of the Society of Integrative and Comparative Biology. Boston MA. Jan 2009
52. HUBEL, Tatjana; BREUER, Kenneth; SWARTZ, Sharon "Individual variability in the aerodynamics and kinematics of bat flight". Annual Meeting of the Society of Integrative and Comparative Biology. Boston MA. Jan 2009.
53. CHEN, Jian; RISKIN, Daniel K.; BREUER, Kenneth S.; SWARTZ, Sharon M.; LAIDLAW, David H. "Bookstein coordinate-based shape analysis of bat wing kinematics". Annual Meeting of the Society of Integrative and Comparative Biology. Boston MA. Jan 2009.
54. Song A. and Breuer KS "Vortex-induced flapping and twisting of a compliant plate". Fluid and Elasticity, Carry-le-Rouet, France. June 2009.

55. Nickolay I. Hristov Daniel K. Riskin, Tatjana Y. Hubel, Louise C. Allen, Kenneth S. Breuer and Sharon M. Swartz "How Do Fast Bats Fly: Wing Kinematics of the Brazilian Free-tailed Bat (*Tadarida brasiliensis*) Flying at a Range of Flight Speeds". North American Symposium on Bat Research. Portland OR, Nov 2009.
56. Tatjana Hubel, S. Swartz, N. Hristov, and K. Breuer "How Different is the Flight of Different Bat Species?" North American Symposium on Bat Research. Portland OR, Nov 2009.
57. Song, A & Breuer KS. Vortex shedding interactions with an oscillating flat plate APS/DFD Meeting. Minneapolis MN. Nov 2009
58. Breuer, KS. and Qian B. Liquid bridge stability and breakup with a receding contact line. APS/DFD Meeting. Minneapolis MN. Nov 2009
59. Hubel, T, Riskin, D. Swartz, S and Breuer K.S. Similarities and differences in the wake structure generated by different species of bats. APS/DFD Meeting. Minneapolis MN. Nov 2009
60. Hoffman, A and Breuer KS. Diffusion-limited evaporation in microchannels. APS/DFD Meeting. Minneapolis MN. Nov 2009
61. He, Q. and Breuer KS. High Speed motion generated by an oscillating microfiber. APS/DFD Meeting. Minneapolis MN. Nov 2009
62. Qian B. and Breuer, KS, Micron-scale measurements of the flow field near a moving contact line. APS/DFD Meeting. Minneapolis MN. Nov 2009
63. Waldman R, and Kudo, J, and Breuer, KS. Trailing vortices from low speed flyers. APS/DFD Meeting. Minneapolis MN. Nov 2009
64. Gagnon, D, and Powers T. and Breuer, KS. Synchronization of flagella and cilia due to viscous interactions. APS/DFD Meeting. Minneapolis MN. Nov 2009
65. Peguero A. Henocho, C. and Breuer, KS. Drag reduction in flows over superhydrophobic surfaces. APS/DFD Meeting. Minneapolis MN. Nov 2009.
66. RISKIN, DK; IRIARTE-DÍAZ, J; MIDDLETON, K; BREUER, KS; SWARTZ, SM "How do bats accelerate?" Soc. Comp. Integ. Bio Annual Meeting Seattle WA Jan 2010
67. STEWART, WJ; BREUER, KS.; MCHENRY, MJ. "Lateral line sensing depends on the volume of the swim bladder in larval fish" . Comp. Integ. Bio Annual Meeting Seattle WA Jan 2010
68. MACAYEAL, Leigh C.; RISKIN, Daniel K.; SWARTZ, Sharon M.; BREUER, Kenneth S. "Vertical climbing performance and reserve power in loaded and unloaded Lesser Dog-faced Fruit Bats (*Cynopterus brachyotis*)" . Comp. Integ. Bio Annual Meeting Seattle WA Jan 2010
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70. BAHLMAN, Joseph WM; SCHUNK, Cosima; SWARTZ, Sharon M.; BREUER, Kenneth S . The effect of wingbeat frequency on aerodynamic force and wake structure using a bat-like mechanical flapper. . Comp. Integ. Bio Annual Meeting Seattle WA Jan 2010
71. HUBEL, T.Y.; HRISTOV, N.I.; RISKIN, D.K.; SWARTZ, S.M.; BREUER, K.S. Bat flight and hierarchies of variability. Comp. Integ. Bio Annual Meeting Seattle WA Jan 2010
72. Breuer, K.S. "Droplet formation and contact line motion". Symposium on Small-scale hydrodynamics: microfluidics and thin films. Banff, Canada, Feb 2010

73. Tatjana T Hubel, Daniel K Riskin, Sharon M Swartz & Kenneth S Breuer "The flight of the lesser short-nosed fruit bat". Annual meeting of the Society of Experimental Biology. Prague 2010.
74. Bian Qian & Kenneth Breuer "Velocity measurements near a moving contact line with sub-micron resolution" APS/DFD Annual Meeting. Long Beach CA, Nov 2010.
75. Attila Bergou, Daniel Riskin, Gabriel Taubin, Sharon Swartz & Kenneth S. Breuer "Falling with Style - Bat flight maneuvers". APS/DFD Annual Meeting. Long Beach CA, Nov 2010.
76. Jennifer Franck, Charles Peguero, Charles Henoach & Kenneth Breuer "Characteristics of Turbulent flow over Superhydrophobic Surfaces". APS/DFD Annual Meeting. Long Beach CA, Nov 2010.
77. Rye M. Waldman, Jun Kudo & Kenneth S. Breuer "Accurate measurement of streamwise vortices in low speed aerodynamic flows". APS/DFD Annual Meeting. Long Beach CA, Nov 2010.
78. Oscar M. Curet & Kenneth S. Breuer "A self-excited flapper from fluid-structure interaction". APS/DFD Annual Meeting. Long Beach CA, Nov 2010.
79. Schunk, C, Chiu, C, Bahlman, JW, Bergou, A, Cheney, J., Waldman, RM, Curet, O, Albright, E, Swartz, SM, Breuer, KS. "Time-Resolved Measurements Of The Velocity Field Over The Wing Of A Bat During Flight Annual meeting of the Society of Integrative and Comparative Biology (SICB) Salt Lake City, UT. Jan 2011.
80. Bergou, AJ, Riskin, DK, Taubin, G, Swartz, SM, Breuer, KS. "Falling With Style" - The Role Of Wing Inertia In Bat Flight Maneuvers Annual meeting of the Society of Integrative and Comparative Biology (SICB) Salt Lake City, UT. Jan 2011.
81. Bahlman, JW, Swartz, SM, Breuer, KS. Measuring Performance Associated With Increasing Kinematic Complexity In A Robotic Bat Wing. Annual meeting of the Society of Integrative and Comparative Biology (SICB) Salt Lake City, UT. Jan 2011.
82. Cheney, JS, Bearnot, A, Breuer, KS, Swartz, SM. Form And Function In The Wing Membrane Of Bats Annual meeting of the Society of Integrative and Comparative Biology (SICB) Salt Lake City, UT. Jan 2011.
83. Hristov, NI, Hedrick, TI, Allen, LC, Chadwell, B, Kunz, TH, Breuer, KS, Swartz, SM. Flight Formation And Group Behavior In The Highly Gregarious Brazilian Free-Tailed Bat *Tadarida Brasiliensis*. Annual meeting of the Society of Integrative and Comparative Biology (SICB) Salt Lake City, UT. Jan 2011.
84. Swartz, SM, Breuer, KS. How Can Bats Inspire Robotic Fliers And Micro Air Vehicles? Annual meeting of the Society of Integrative and Comparative Biology (SICB) Salt Lake City, UT. Jan 2011.
85. Bergou, A., J. Franck, G. Taubin, S. Swartz and K. Breuer (2011). "Inertial and Fluid Forces during Bat Flight Maneuvers." APS/DFD Annual Meeting, Baltimore MD
86. Curet, O., S. Swartz and K. Breuer (2011). "Lift force enhancement and fluid-structure interactions on a self-excited flapping wing model." APS/DFD Annual Meeting, Baltimore MD
87. Dasgupta, M., M. Berhanu, A. Kudrolli, H. Fu, K. Breuer and T. Powers (2011). "Swimming speed of an oscillating sheet in Newtonian and viscoelastic fluids." APS/DFD Annual Meeting, Baltimore MD
88. Desai, A., B. Liu, T. Powers and K. Breuer (2011). "Particle image velocimetry experiments on a model helical flagellum in viscoelastic fluids." APS/DFD Annual Meeting, Baltimore MD

89. Franck, J., S. Swartz and K. Breuer (2011). "Large-Eddy Simulations of Flapping-Induced Lift Enhancement." APS/DFD Annual Meeting, Baltimore MD
90. Liu, B., T. Powers and K. Breuer (2011). "Force-free swimming of a model helical flagellum in viscoelastic fluids." APS/DFD Annual Meeting, Baltimore MD
91. Liu, B., T. Powers and K. Breuer (2011). "Motility of rotating flagella in viscoelastic fluids." APS/DFD Annual Meeting, Baltimore MD
92. Qian, B. and K. Breuer (2011). "Micron-scale measurement of dynamic contact angles in the vicinity of moving contact lines." APS/DFD Annual Meeting, Baltimore MD
93. Schunk, C., S. Swartz and K. Breuer (2011). "Time-resolved measurements of the velocity field over the wing of bats during flight." APS/DFD Annual Meeting, Baltimore MD
94. van Lengerich, H., P. Steen and K. Breuer (2011). "Slip in viscous contact-line movement." APS/DFD Annual Meeting, Baltimore MD
95. Waldman, R., S. Swartz and K. Breuer (2011). "Fluid-structure interactions on compliant membrane wings." APS/DFD Annual Meeting, Baltimore MD
96. Yu, T. S., J. Park, H. Lim and K. S. Breuer (2011). "Fog interaction with a textured hydrophobic surface: deposition, growth, and wetting." APS/DFD Annual Meeting, Baltimore MD
97. Von Busse, J.R.S. Swartz, S.M.; Breuer, K.S.; Hedenstrom, A.; Winder, Y.; Voight, C.C. Energetics of Bat Flight SICB Annual Meeting, Charlotte NC, Jan 2012
98. Chiu, Chen; Swartz, SM.; Breuer, KS. "The interactive flight of bats". SICB Annual Meeting, Charlotte NC, Jan 2012
99. Bergou, AJ; Swartz, SM; Breuer, KS; Taubin, G "3D Reconstruction and Analysis of Bat Flight Maneuvers from Sparse Multiple View Video". SICB Annual Meeting, Charlotte NC, Jan 2012
100. Bergou, AJ; Franck, J; Reimnitz, L; Riskin, D; Taubin, G; Swartz, SM; Breuer, KS. "Inertial and Fluid Forces during Bat Flight Maneuvers". SICB Annual Meeting, Charlotte NC, Jan 2012
101. Bahlman JW; Swartz, SM; Breuer, KS. "Measuring cost of flight associated with varying kinematics in a robotic bat wing". SICB Annual Meeting, Charlotte NC, Jan 2012
102. Cheney, JA.; Bearnot, A.; Breuer, KS.; Swartz, SM. "Pre-stressed compliant fibers within the wing membrane of *Glossophaga soricina*, Pallas' long tongued bat". SICB Annual Meeting, Charlotte NC, Jan 2012.
103. R. M. Waldman, K. S. Breuer "Fluid-structure interactions on compliant membrane wings". Fluids and Elasticity, La Jolla CA Nov 2012.
104. B. Liu, T. R. Powers, K. S. Breuer "Helical swimming in viscoelastic fluids", Fluids and Elasticity, La Jolla CA Nov 2012.
105. KS. Breuer, B.Liu, TR. Powers. Helical swimming in confined geometries, APS/DFD Annual Meeting. San Diego. November 2012.
106. OM. Curet, A. Carrere, A. Pande, KS. Breuer. "Aerodynamic performance of membrane wings with adaptive compliance," APS/DFD Annual Meeting. San Diego. November 2012.
107. R. M. Waldman K.S. Breuer. "Vortex interactions with membrane wings" APS/DFD Annual Meeting. San Diego. November 2012.
108. M. Dasgupta, B. Liu, H. Fu, M. Berhanu, KS. Breuer, T. Powers, A. Kudrolli. "Speed of a Taylor Swimmer in Newtonian and Viscoelastic Fluids" APS/DFD Annual Meeting. San Diego. November 2012.

109. B. Liu, M. Morse, J. Tang, T. Powers, KS. Breuer “Tracing the run-flip motion of an individual bacterium” APS/DFD Annual Meeting. San Diego. November 2012.
110. R.von Busse, RM. Waldman SM. Swartz KS. Breuer. “The aerodynamic cost of flight in bats---comparing theory with measurement” APS/DFD Annual Meeting. San Diego. November 2012.
111. Bergou, AJ; Franck, J; Taubin, G; Swartz, SM; Breuer, KS. “How do bats turn?” SICB Annual Meeting, San Francisco. Jan. 2013.
112. A Bergou, J Franck, G Taubin, S Swartz, and K Breuer. How do bats turn. SICB Annual Meeting, San Francisco. Jan. 2013.
113. J Bahlman, S Swartz, and K Breuer. The cost of performance power cost and aerodynamic force generated by varying wingbeat kinematics. I SICB Annual Meeting, San Francisco. Jan. 2013.
114. J Cheney, K Middleton, N Konow, E Giblin, K Breuer, and S Swartz. Electromyography of bat wing membrane muscles. SICB Annual Meeting, San Francisco. Jan. 2013.
115. C Schunk, C Chiu, S Swartz, and K Breuer. Velocity fields in the near wake of e fuscus. SICB Annual Meeting, San Francisco. Jan. 2013.
116. N Konow, R Von Busse, J Cheney, K Breuer, and S Swartz. What is the relationship between pectoralis muscle recruitment intensity and air speed velocity in an un laden bat. SICB Annual Meeting, San Francisco. Jan. 2013.
117. Y Fan and KS Breuer. Contact line and bulk velocities in evaporating micron scale droplets. *Annual Meeting of the American Physical Society, Division of Fluid Dynamics.* Pittsburgh PA, Nov 2013.
118. B Liu, TR Powers, and KS Breuer. Contribution of cell body to the thrust production of flagellate bacteria. *Annual Meeting of the American Physical Society, Division of Fluid Dynamics.* Pittsburgh PA, Nov 2013.
119. K Onoue, B Strom, A Song, and K Breuer. Vortex induced vibrations of a flexibly mounted cyber physical rectangular plate. . *Annual Meeting of the American Physical Society, Division of Fluid Dynamics.* Pittsburgh PA, Nov 2013.
120. J Park and KS Breuer. Measurements of a high speed receding contact line on a hydrophobic surface. . *Annual Meeting of the American Physical Society, Division of Fluid Dynamics.* Pittsburgh PA, Nov 2013.
121. B Strom, J Franck, and KS Breuer. Energy harvesting from an oscillating flat plate in a uniform flow. . *Annual Meeting of the American Physical Society, Division of Fluid Dynamics.* Pittsburgh PA, Nov 2013.
122. C Schunk, K Michaelson, T Paine, SM Swartz, and KS Breuer. The effect of aspect ratio on the generation of lift and drag of a compliant membrane flapping wing. . *Annual Meeting of the American Physical Society, Division of Fluid Dynamics.* Pittsburgh PA, Nov 2013.
123. RM Waldman and KS Breuer. Vortex interaction on low aspect ratio membrane wings. . *Annual Meeting of the American Physical Society, Division of Fluid Dynamics.* Pittsburgh PA, Nov 2013.
124. Schunk, C., Michaelson, K., Paine, T., Swartz, S., & Breuer, K. The effect of aspect ratio on the generation of lift and drag of bat-like flapping wings, *Annual Meeting of the Society of Integrative and Comparative Biology*, Austin TX. Jan 2014
125. Bahlman, J., Lippe, H., Breuer, K., & Swartz, S. Diversity and functional consequences of reducing synovial joints in bat wings, *Annual Meeting of the Society of Integrative and Comparative Biology*, Austin TX. Jan 2014

126. Onoue, K., Strom, B. & Breuer, K S. Vortex Shedding and Energy Harvesting from a Cyber-physical Compliant Flat Plate. 17th US National Congress on Theoretical and Applied Mechanics, Michigan, June 2014
127. Swartz, SM & Breuer, KS “Mechanics and Energetics of Bat Flight. *Society of Experimental Biology* Manchester UK, July 2014.
128. Kim, D., Strom, B. Miller, M, Franck, J, Mandre, S & Breuer, K. Energy harvesting and unsteady vortex dynamics of an oscillating hydrofoil. US National Congress on Theoretical and Applied Mechanics, Michigan, June 2014
129. Onoue, K. & Breuer, K. Vortex formation, shedding and energy harvesting from a cyber-physical pitching flat plate, volume 59. *Annual Meeting of the American Physical Society, Division of Fluid Dynamics*. San Francisco, CA, Nov 2014
130. Strom, B., Kim, D., Mandre, S., & Breuer, K. Parametric dependence of energy harvesting performance with an oscillating hydrofoil, *Annual Meeting of the American Physical Society, Division of Fluid Dynamics*. San Francisco, CA, Nov 2014
131. Kim, D., Strom, B., Su, Y., Mandre, S., & Breuer, K. The effect of aspect ratio on the performance of an energy harvesting hydrofoil, *Annual Meeting of the American Physical Society, Division of Fluid Dynamics*. San Francisco, CA, Nov 2014
132. Schunk, C., Swartz, S. M., & Breuer, K. S. Near and far wake structures behind freely flying bats, *Annual Meeting of the American Physical Society, Division of Fluid Dynamics*. San Francisco, CA, Nov 2014
133. Kiser, J. R. & Breuer, K. S. An out-of-plane velocity component in dielectric barrier discharge actuator flow, *Annual Meeting of the American Physical Society, Division of Fluid Dynamics*. San Francisco, CA, Nov 2014
134. Miller, M., Strom, B., Breuer, K., & Mandre, S. Optimization of energy harvesting efficiency of an oscillating hydrofoil: Sinusoidal and non-sinusoidal trajectories, Annual Meeting of the American Physical Society, Division of Fluid Dynamics. San Francisco, CA, Nov 2014.
135. J Cheney, N Konow, K Middleton, K Breuer, T Roberts, E Giblin, & S Swartz. (2015), Shaping the wings of bats: Muscle and wing skin interactions. *Annual Meeting of the Society of Integrative and Comparative Biology*, Palm Beach, Jan 2015.
136. K Onoue & K Breuer. 3D characterization of leading-edge vortex formation and growth, *Annual Meeting of the American Physical Society, Division of Fluid Dynamics*, Boston MA.
137. J Park & KS Breuer. Measurement of strong Marangoni flow near a contact line of a water droplet on hydrophobic surfaces, *Annual Meeting of the American Physical Society, Division of Fluid Dynamics*, Boston MA. November 2015.
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139. Y Su, M Miller, S Mandre, & K Breuer. The effect of wall proximity on energy harvesting using a pitching and heaving hydrofoil, *Annual Meeting of the American Physical Society, Division of Fluid Dynamics*, Boston MA. November 2015.
140. FZ Temel, Z Qu, M McAllaster, C de Graffenried, & K Breuer. Motility modes of the parasite *Trypanosoma brucei*, *Annual Meeting of the American Physical Society, Division of Fluid Dynamics*, Boston MA. November 2015.
141. H Vejdani, D Boerma, S Swartz, & K Breuer. The roles of aerodynamic and inertial forces on maneuverability in flapping flight, *Annual Meeting of the American Physical Society, Division of Fluid Dynamics*, Boston MA. November 2015.

142. D Boerma, H Vejdani, T Treskatis, J Cheney, K Breuer, & S Swartz. (2016), Aerodynamic and inertial contributions to recovery from aerial stumbles in seba's short-tailed bat, in INTEGRATIVE AND COMPARATIVE BIOLOGY. volume 56. pp. E262–E262. OXFORD UNIV PRESS INC JOURNALS DEPT, 2001 EVANS RD, CARY, NC 27513 USA.
143. G Alon Tzezana & K Breuer. (2016), Unsteady fluid-structure interactions with a heaving compliant membrane wing, in APS Division of Fluid Dynamics Meeting Abstracts. Portland OR.
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145. M Miller, J Cardona, L Block, K Kondo, M Lee, R Lorick, M Manning, I Scherl, F Simeski, A Spaulding, et al. (2016), Results from the field test of two 1 KW oscillating hydrofoil generators in a tidal canal, in APS Division of Fluid Dynamics Meeting Abstracts. Portland OR.
146. J Park, K Breuer, et al. (2016), Nanoscale measurement of apparent slip velocity near a moving contact line, in APS Meeting Abstracts. Portland OR.
147. Z Qu, R Henderikx, & K Breuer. (2016), The swimming behavior of flagellated bacteria in viscous and viscoelastic media, in APS Meeting Abstracts. Portland OR.
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149. H Vejdani, D Boerma, S Swartz, & K Breuer. (2016), Toward understanding the mechanics of hovering in insects, hummingbirds and bats, in APS Meeting Abstracts. Portland OR.
150. K. Breuer (2017) "Experimental approaches and (very) simple models of bio-inspired membrane aerodynamics" AIAA Aerodynamic Decelerator Systems Conference, Denver CO (Invited)
151. J. Bohnker and K. Breuer. Separated flow control with actuated membrane wings. Bulletin of the American Physical Society, 2017.
152. Y. Fan, K.-T. Wu, S. Fraden, Z. Dogic, and K. Breuer. Three-dimensional flow structure in a kinesin- driven active gel. Bulletin of the American Physical Society, 2017.
153. W. Lee, M. de Zordo-Banliat, Y. Su, M. Miller, and K. Breuer. Vortex trajectory and wake structure behind an energy harvesting hydrofoil. Bulletin of the American Physical Society, 2017.
154. J. Rehm, J. Cheney, K. Breuer, and S. Swartz. The function of wing membrane muscles in bats. In INTEGRATIVE AND COMPARATIVE BIOLOGY, volume 57, pages E137–E137. OXFORD UNIV PRESS INC JOURNALS DEPT, 2001 EVANS RD, CARY, NC 27513 USA, 2017.
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159. J. Bohnker and K. Breuer. Integrated sensing and actuation of unsteady flow-induced membrane deformations. *Bulletin of the American Physical Society*, 2018.
160. M. Di Luca and K. Breuer. Steady blowing to control the lift and drag on a free shear layer airfoil. *Bulletin of the American Physical Society*, 2018.
161. Y. Fan, K.-T. Wu, S. A. Aghvami, S. Fraden, Z. Dogic, and K. Breuer. The loss of isotropy due to confinement in kinesin-driven active fluids. *Bulletin of the American Physical Society*, 2018.
162. Y. Su and K. Breuer. Using cyber-physical pitch-heave systems for both energy harvesting and propulsion. *Bulletin of the American Physical Society*, 2018.
163. K Wu, J Novak and K Breuer “Scaling of the performance of passively-pitching robotic flapping wings” SICB annual meeting, Tallahassee FL Jan 2019.
164. Z Qu and K Breuer “Bacterial motility in Newtonian and non-Newtonian fluids”. Presented at the “ShelleyFest” – a symposium in honor of Michael Shelley. Ann Arbor Michigan, July 2019
165. Z Qu and K Breuer “Bacterial motility in Newtonian and non-Newtonian fluids”. Presented at Stokes 200 – a symposium in honor of George Gabriel Stokes 200th Birthday, Pembroke College, Cambridge UK . September 2019.
166. Fan, X., Swartz, S., & Breuer, K. (2020), A reduced order computational model to simulate the dynamics of maneuvering flight, in *Annual Meeting of the Society of Integrative and Comparative Biology*. volume 60. pp. E317–E317.
167. Bortoni, A., Morris, A., Young, I., Breuer, K., & Swartz, S. (2020), Synchronous muscle recruitment for stable flight control in egyptian fruit bats, in *Annual Meeting of the Society of Integrative and Comparative Biology*. volume 60. pp. E22–E22.
168. Murphy, C., Lyons, K., Haddock, W., Martin, W., Hellum, A., Breuer, K., & Franck, J. (2020), Feature variations in seal whisker geometries and the effect on vortex structure, in *Annual Meeting of the Society of Integrative and Comparative Biology*. volume 60. pp. E169–E169.
169. Bortoni, A., Morris, A., Young, I., Breuer, K., & Swartz, S. (2020), How bats don’t crash and burn: Bilateral muscle recruitment for recovery maneuvers in egyptian fruit bats, in *Annual Meeting of the Society of Integrative and Comparative Biology*. volume 60. pp. E286–E286.
170. Breuer, K., Das, A., Bailey, J., & Mathai, V. (2020), Airflows inside passenger cars and implications for airborne disease transmission, in *Annual Meeting of the American Physical Society, Division of Fluid Mechanics*.
171. Alon Tzezana, G., Mathai, V., & Breuer, K. (2020), Thrust estimation for a flapping membrane foil using control volume analysis, in *Annual Meeting of the American Physical Society, Division of Fluid Mechanics*.
172. Mathai, V., Tzezana, G. A., & Breuer, K. (2020), Fluid structure interactions of an oscillating compliant membrane hydrofoil, in *Annual Meeting of the American Physical Society, Division of Fluid Mechanics*.
173. Rocha Ribeiro, B. L., Su, Y., Burkhart, D., Breuer, K., & Franck, J. (2020), Predicting energy harvesting efficiency in two tandem oscillating foils, in *Annual Meeting of the American Physical Society, Division of Fluid Mechanics*.

174. Lee, H., Simone, N., Su, Y., & Breuer, K. (2020), Using supervised machine learning to predict leading edge vortex growth, detachment, and wake trajectory, in Annual Meeting of the American Physical Society, Division of Fluid Mechanics.
175. Das, A., Mathai, V., & Breuer, K. (2020), Compliant membranes exhibit enhanced drag due to membrane fluctuations, in Annual Meeting of the American Physical Society, Division of Fluid Mechanics.
176. Di Luca, M. & Breuer, K. (2020), Wall distance influences on the stability and transition to turbulence of free shear layers separating at low Reynolds number, in Annual Meeting of the American Physical Society, Division of Fluid Mechanics.
177. Zhu, Y. & Breuer, K. (2020), Nonlinear stability boundaries of elastically mounted pitching swept wings, in Annual Meeting of the American Physical Society, Division of Fluid Mechanics.
178. Fan, X. & Breuer, K. (2020), 3d reduced-order modeling of flapping flight with heavy and highly articulated wings, in Annual Meeting of the American Physical Society, Division of Fluid Mechanics.
179. Y. Zhu, V. Mathai, and K. Breuer, "Fluid damping scaling of elastically mounted pitching wings in quiescent water," Annual Meeting of the American Physical Society, Division of Fluid Mechanics. 2021.
180. Upfal, Y. Zhu, and K. Breuer, "Optimal energy harvesting kinematics for compliant membrane hydrofoils," Annual Meeting of the American Physical Society, Division of Fluid Mechanics. 2021.
181. E. Tucker, J. Chowdhury, J.-Y. Cho, K. Shoele, R. Mittal, and K. Breuer, "Flow permeability and flow-induced deformations of medical face masks and mask materials," Annual Meeting of the American Physical Society, Division of Fluid Mechanics. 2021.
182. T. Solano, K. Shoele, K. Breuer, and R. Mittal, "The connection between mask deformation and peripheral leakage," Annual Meeting of the American Physical Society, Division of Fluid Mechanics. 2021.
183. K. Rowley *et al.*, "Evidence for a proximal-distal gradient in muscle responses to a wind gust perturbation in the Egyptian fruit bat," Annual Meeting of the Society of Integrative and Comparative Biology, 2021, vol. 61, pp. E764–E765.
184. C. Ni *et al.*, "Simple Models of Face Mask Aerodynamics to Quantify Effects of Peripheral Leaks on Mask Effectiveness," 2021.
185. S. Hao, J. Kirsch-Posner, A. Koh-Bell, J. Cooney, N. Fine, and K. Breuer, "Using an Active Gurney Flap to Improve the Aerodynamic Performance of a Wind Turbine Blade," Annual Meeting of the American Physical Society, Division of Fluid Mechanics. 2021.
186. S. Friman *et al.*, "Surfing Birds: How birds interact with vortex wakes," Annual Meeting of the American Physical Society, Division of Fluid Mechanics. 2021.
187. X. Fan, S. Swartz, and K. Breuer, "Power requirements for flapping flight with heavy and highly articulated wings," Annual Meeting of the Society of Integrative and Comparative Biology, 2021, vol. 61, pp. E244–E245.
188. Flapping wing robot with twist and fold capability," Annual Meeting of the American Physical Society, Division of Fluid Mechanics. 2021.
189. X. Fan, K. Breuer, and H. Vejdani, "Wing Fold and Twist Greatly Improves Flight Efficiency for Bat-Scale Flapping Wing Robots," 2021, pp. 7391–7397.
190. G. Durey *et al.*, "Measuring the Stokes' drag in a microtubule-kinesin active gel," Annual Meeting of the American Physical Society, March Meeting, 2021.

191. A. Anand, T.-K. Wang, T. Solano, K. Breuer, R. Mittal, and K. Shoele, "Analytical Model to Infer Mask Peripheral Leakage Pattern in Large Population," Annual Meeting of the American Physical Society, Division of Fluid Mechanics. 2021.
192. Ni, C., Solano, T., Wang, T.-K., Seo, J.-H., Breuer, K. and Mittal, R. (2021) 'Simple Models of Face Mask Aerodynamics to Quantify Effects of Peripheral Leaks on Mask Effectiveness', in *Bulletin of the American Physical Society*. American Physical Society.
193. Friman, S., Hao, S., Mendez, L., Brown, I., Elowe, C., Gerson, A., Hedrick, T. and Breuer, K. (2021) 'Surfing Birds: How birds interact with vortex wakes', in *Bulletin of the American Physical Society*. American Physical Society.
194. Solano, T., Shoele, K., Breuer, K. and Mittal, R. (2021) 'The connection between mask deformation and peripheral leakage', in *Bulletin of the American Physical Society*. American Physical Society.
195. Hao, S., Kirsch-Posner, J., Koh-Bell, A., Cooney, J., Fine, N. and Breuer, K. (2021) 'Using an Active Gurney Flap to Improve the Aerodynamic Performance of a Wind Turbine Blade', in *Bulletin of the American Physical Society*. American Physical Society.
196. Zhu, Y. and Breuer, K. (2022) 'Aeroelastic instabilities and three-dimensional vortex dynamics of pitching swept wings', in *Bulletin of the American Physical Society*. American Physical Society.
197. Fan, X., Bortoni, A., Hao, S., Sollenberger, A., Swartz, S. and Breuer, K. (2022) 'Bat-inspired wing clapping during upstroke improves lift and power economy', in *Bulletin of the American Physical Society*. American Physical Society.
198. Upfal, I., Zhu, Y., Handy-Cardenas, E., Newbolt, J. and Breuer, K. (2022) 'Compliant membranes to augment the performance of oscillating foil energy harvesting systems', in *Bulletin of the American Physical Society*. American Physical Society.
199. He, X., Zhu, Y. and Breuer, K. (2022) 'Evolution of suction parameters on a large-amplitude pitching hydrofoil', in *Bulletin of the American Physical Society*. American Physical Society.
200. Handy-Cardenas, E., Balaguera, I., Newbolt, J., Zhu, Y., He, X. and Breuer, K. (2022) 'Optimal kinematics for energy harvesting using favorable wake-foil interactions in tandem oscillating hydrofoils', in *Bulletin of the American Physical Society*. American Physical Society.
201. Koh-Bell, A., Hao, S., Irani, R., Posner, J. and Breuer, K. (2022) 'Proportional aerodynamic performance modulation using an active gurney flap on a wind turbine blade section', in *Bulletin of the American Physical Society*. American Physical Society.
202. Newbolt, J., Zhu, Y., Handy-Cardenas, E., He, X. and Breuer, K. (2022) 'Seal-vibrissa-inspired wavy cylinders vibrate in the wake of a flapping foil', in *Bulletin of the American Physical Society*. American Physical Society.
203. Urban, C., Fan, X., Swarrup, S., Guo, C.R., Marella, D., Irani, R., Swartz, S. and Breuer, K. (2022) 'Stability derivatives of a flapping wing-body system', in *Bulletin of the American Physical Society*. American Physical Society.
204. Friman, S., Hao, S., Elowe, C., Mendez, L., Ayala, R., Hagood, C., Jackson, D., Orfanides, G., Ozcan, E., Ramirez, J., Brown, I., Gerson, A., Hedrick, T. and Breuer, K. (2023) 'Can flight in flocks be less costly than solo flight?', in *Integrative and Comparative Biology*. SICB, Austin TX, p. S1. Available at: <https://doi.org/10.1093/icb/icad002>.
205. Gehrke, A., Swarrup, S. and Breuer, K. (2023) 'Deformation, drag, and vortex shedding from a porous membrane disk', in *Bulletin of the American Physical Society*. American Physical Society.

206. Newbolt, J., Erickson, E., Markt Jr, D., Murphy, C. and Breuer, K. (2023) 'Flow-induced oscillations of seal-vibrissa-like undulated cylinder in disturbed flows', in *Bulletin of the American Physical Society*. American Physical Society.
207. Gaudio, P., Zhu, Y., Handy-Cardenas, E., He, X. and Breuer, K. (2023) 'Force/moment partitioning applied to particle image velocimetry data for a pitching wing', in *Bulletin of the American Physical Society*. American Physical Society.
208. He, X. and Breuer, K. (2023) 'Hydrodynamic loads and vortex evolution from a flapping fin near a solid body', in *Bulletin of the American Physical Society*. American Physical Society.
209. Kiran, A., Ayanian, N. and Breuer, K. (2023) 'Influence of quadrotor downwash on close proximity flight', in *Bulletin of the American Physical Society*. American Physical Society.
210. Handy-Cardenas, E. and Breuer, K. (2023) 'Optimizing energy harvesting performance of a tandem hydrofoil turbine array with vortex-foil interactions', in *Bulletin of the American Physical Society*. American Physical Society.
211. Gissler, R., Swarrup, S. and Breuer, K. (2023) 'Static longitudinal stability in a flapping robot', in *Bulletin of the American Physical Society*. American Physical Society.
212. Hao, S., Gissler, R., Rybner, J., Fullick, K., Islam, M., Medina, N., Diring, T., Gerson, A., Hedrick, T. and Breuer, K. (2023) 'Surfing birds: flight interactions with a structured vortex wake', in *Bulletin of the American Physical Society*. American Physical Society.
213. Erickson, E., Newbolt, J. and Breuer, K. (2023) 'Vortex-induced vibrations of elastically mounted bluff bodies in response to unsteady vortex wake flows', in *Bulletin of the American Physical Society*. American Physical Society.
214. Fan, X., Gehrke, A., Sollenberger, A. and Breuer, K. (2023) 'Wing folding and twisting synergistically boost lift generation for flapping wing flight', in *Bulletin of the American Physical Society*. American Physical Society.
215. Hao, S., Costa Ormonde, P. and Breuer, K. (2024) 'Aerodynamic Forces on a Wing Surfing in a Two-dimensional Vortex Wake', in *Bulletin of the American Physical Society*. APS. Available at: <https://meetings.aps.org/Meeting/DFD24/Session/C31.20> (Accessed: 5 December 2024).
216. DEB, D., Zhu, Y. and Breuer, K. (2024) 'Connection between vortex structures and the center of pressure in unsteady separated flow over pitching swept wings', in *Bulletin of the American Physical Society*. APS. Available at: <https://meetings.aps.org/Meeting/DFD24/Session/R38.3> (Accessed: 5 December 2024).
217. Handy-Cardenas, E., Yan, B., Franck, J. and Breuer, K. (2024) 'Dynamic Response of a Free-flying Airfoil to Prescribed Vortex Gusts', in *Bulletin of the American Physical Society*. APS. Available at: <https://meetings.aps.org/Meeting/DFD24/Session/L30.6> (Accessed: 5 December 2024).
218. Yan, B., Handy-Cardenas, E., Breuer, K. and Franck, J. (2024) 'Numerical investigation of a vortex gust impinging on a lightweight wing', in *Bulletin of the American Physical Society*. APS. Available at: <https://meetings.aps.org/Meeting/DFD24/Session/J31.2> (Accessed: 5 December 2024).
219. Ormonde, P., Handy-Cardenas, E., Erickson, E., He, X. and Breuer, K. (2024) 'Positional control of an underwater vehicle using pectoral fins', in *Bulletin of the American Physical Society*. APS. Available at: <https://meetings.aps.org/Meeting/DFD24/Session/C09.10> (Accessed: 5 December 2024).

220. Gissler, R., Romo, S., Fullick, K., Sand, O., Cannon, A., Herrera, V. and Breuer, K. (2024) 'Stability in Flapping Flight for Two Different Robotic Flappers', in *Bulletin of the American Physical Society*. APS. Available at: <https://meetings.aps.org/Meeting/DFD24/Session/C33.7> (Accessed: 5 December 2024).
221. Gehrke, A., King, Z. and Breuer, K. (2024) 'Stabilizing Flows: The Role of Poro-Elasticity in Reducing Unsteady Drag Forces', in *Bulletin of the American Physical Society*. APS. Available at: <https://meetings.aps.org/Meeting/DFD24/Session/R30.3> (Accessed: 5 December 2024).
222. Kiran, A., Marella, D., Wang, A., Ayanian, N. and Breuer, K. (2024) 'Steady and Unsteady Downwash Effects in Multirotor Interactions', in *Bulletin of the American Physical Society*. APS. Available at: <https://meetings.aps.org/Meeting/DFD24/Session/A30.5> (Accessed: 5 December 2024).
223. Erickson, E., Newbolt, J., Handy-Cardenas, E. and Breuer, K. (2024) 'Vibrissa-inspired geometries exhibit enhanced sensitivity to wake-induced vibrations', in *Bulletin of the American Physical Society*. APS. Available at: <https://meetings.aps.org/Meeting/DFD24/Session/C31.5> (Accessed: 5 December 2024).
224. DEB, D., Handy-Cardenas, E.E., SUBEDI, A., Peet, Y. and Breuer, K.S. (2025) 'Connecting wall pressure fluctuations with flow structure over a backward-facing step using reduced order models', in *APS Division of Fluid Dynamics Annual Meeting*.
225. Ormonde, P.C., Handy-Cardenas, E.E., DEB, D. and Breuer, K.S. (2025) 'Effects of lateral maneuvering on pectoral fin flow structures and forces', in *APS Division of Fluid Dynamics Annual Meeting*.
226. Erickson, E., Handy-Cardenas, E.E. and Breuer, K.S. (2025) 'Fluid damping, added mass, and vorticity-induced forces influence sensitivity to vibration of vibrissa-inspired models', in *APS Division of Fluid Dynamics Annual Meeting*.
227. Gissler, R., Waultre, A., Bergman, J. and Breuer, K.S. (2025) 'How wingbeat kinematics affect the wake structure of a flapping wing robot', in *APS Division of Fluid Dynamics Annual Meeting*.
228. Subedi A., Deb, D., Cardenas, E.H., Breuer, K.S. and Peet, Y. (2025) 'Identifying dominant flow structures and their frequencies in a DNS of a backward facing step for flow separation control', in *APS Division of Fluid Dynamics Annual Meeting*.
229. Yan, B., Handy-Cardenas, E.E., Breuer, K.S. and Franck, J.A. (2025) 'Numerical investigation of a vortex gust impinging on a freely-flying flexible airfoil', in *APS Division of Fluid Dynamics Annual Meeting*.
230. Morrison, K.R., Tabachnik, E., McMillon, T. and Breuer, K.S. (2025) 'Performance of a model wind turbine subject to simulated wave motion', in *APS Division of Fluid Dynamics Annual Meeting*.
231. McMillon, T., Benner, B.M., Morrison, K.R., Tabachnik, E. and Breuer, K.S. (2025) 'PIV analysis of the near wake behind a dynamically pitching horizontal axis wind turbine', in *APS Division of Fluid Dynamics Annual Meeting*.
232. Benner, B.M., McMillon, T., Morrison, K.R., Tabachnik, E. and Breuer, K.S. (2025) 'PIV analysis of the near wake behind a statically pitched horizontal axis wind turbine', in *APS Division of Fluid Dynamics Annual Meeting*.
233. Gehrke, A., Breuer, K.S., and others (2025) 'PIV-in-the-loop: real-time flow field optimization of active turbulence grids', in *APS Division of Fluid Dynamics Annual Meeting*.

234. Peet, Y., Subedi, A., Deb, D., Nayak, P., Valdevit, L. and Breuer, K.S. (2025) 'Separation control using resonant metamaterials', in *APS Division of Fluid Dynamics Annual Meeting*.
235. Breuer, K.S. (2025) "The" Homsy Effect"-Bud Homsy's role in fluid mechanics education', in *APS Division of Fluid Dynamics Annual Meeting*.

Keynote presentations and major lectures

(Complete only since 9/99)

1. Invited Lecture Series, Flow control and MEMS, von Karman Institute for Fluid Dynamics. St Genevive, Belgium April 2002
2. Plenary Talk, Active Control of Turbulence. Flow Control Symposium, Tokyo, March 2002
3. Plenary Lecture "Scientific Frontiers in Micro- and Nano-Scale Fluid Dynamics". ASME IMECE. New Orleans LA. Nov 2002.
4. Plenary Lecture "Microfluidics – Science and Engineering at the Edge of the Continuum". Annual Meeting of the American Physical Society. Dallas TX Nov 2002.
5. Invited Lecturer. Flow control and MEMS, von Karman Institute for Fluid Dynamics. Ohio Aerospace Institute. March 2003
6. Invited plenary talk "Active Flow Control" 13th European Turbulence Conference, Aussois France. June 2004.
7. Invited Lectures "Active control of Turbulent Shear flows (Parts I and II). Institute for Mathematical Sciences, National University of Singapore. December 2004.
8. Principal Lecturer "Introduction to Microfluidics" International Centre for Theoretical Physics Summer School on Microfluidics, Trieste (Italy). August 2005.
9. Keynote Lecture "Slip velocities at the nanoscale" ASME Nano2005, Berkeley CA, September 2005.
10. Keynote Lecture. "Experiments in Turbulent Flow Control". IUTAM Symposium on MEMS and Flow Control. London UK. September 2006.
11. Invited Seminar (Midwest Mechanics Lecture Series). "Random Motions in Small-Scale Fluid Mechanics University of Michigan. Ann Arbor MI. December 2006.
12. Invited Seminar (Midwest Mechanics Lecture Series). "Random Motions in Small-Scale Fluid Mechanics Michigan State University. E. Lansing MI. December 2006.
13. Invited Seminar (Midwest Mechanics Lecture Series). "Random Motions in Small-Scale Fluid Mechanics Iowa State University. Ames IA. December 2006.
14. Invited Seminar (Midwest Mechanics Lecture Series). "Random Motions in Small-Scale Fluid Mechanics" University of Wisconsin, Madison WI. December 2006.
15. Invited Seminar (Midwest Mechanics Lecture Series). "Random Motions in Small-Scale Fluid Mechanics University of Minnesota. Minneapolis, MN, December 2006.
16. Invited Seminar (Midwest Mechanics Lecture Series). "Random Motions in Small-Scale Fluid Mechanics Northwestern University, Evanston IL, March 2007.
17. Invited Seminar (Midwest Mechanics Lecture Series). "Aeromechanics of Bat Flight" Notre Dame University, South Bend IN, March 2007.
18. Invited Seminar (Midwest Mechanics Lecture Series). "Aeromechanics of Bat Flight" Illinois Institute of Technology, Chicago IL, March 2007.

19. Invited Seminar (Midwest Mechanics Lecture Series). "Random Motions in Small-Scale Fluid Mechanics University of Illinois. Champagne-Urbana IL, March 2007.
20. Invited Seminar (Midwest Mechanics Lecture Series). "Random Motions in Small-Scale Fluid Mechanics Purdue University, West Lafayette IN, March 2007.
21. Plenary speaker. New England Complex Fluid Workshop. Providence RI June 2007.
22. Keynote Speaker. "Quantum Dots in Micro and Nanometer Scale Fluid Mechanics" Dutch FOM Annual Meeting, Eindhoven. NL Jan 2008.
23. Keynote Speaker. "The Aeromechanics of Bat Flight" The International Symposium on Nature-Inspired Technology. Jeju S. Korea, June 2009.
24. Invited Speaker to Air Force Institute of Technology (AFIT) Distinguished Lecture Series, "Compliant Wing Aeromechanics - from Bats to MAVS". Dayton OH. Dec 2010.
25. University of British Columbia, Institute for Applied Mathematics (IAM)-Pacific Institute for Mathematical Sciences (PIMS) Distinguished Colloquium Speaker. "Bacterial Microfluidics: the physics and engineering of bacterial motility". Feb 2011
26. Keynote lecture at the International Conference for Microscale Fluid Flow and Heat Transfer, Fukuoka (Japan) "Flows near a contact line with and without evaporation", September 2011
27. Featured speaker at the Brown University STEM recruitment weekend, April 2012.
28. Keynote speaker, "The Aeromechanics of Bat Flight", at Israel Conference on Aerospace Sciences, Tel Aviv (Israel). March 2013
29. Keynote Speaker. "Optical Velocimetry at the Nanoscale". 10th Symposium on Particle Image Velocimetry, Delft (Netherlands), July 2013.
30. Nick and Maggie DeWolf Lecture (Public lecture on Physics), sponsored by the Aspen Center for Physics, Aspen Colorado. Jan 2014.
31. Keynote Speaker. "Fluids and Elasticity" The International Symposium on Nature-Inspired Technology. Sapporo Japan, Feb 2014.
32. Paris Science Lectures: "Swimming at Low Reynolds Number", Ecole Superieure Physique et Chemie de Industrie" (ESPCI), Paris. May 2015.
33. Short Course: "Microscale Fluid Dynamics", Udine, Italy, May 2015.
34. Keynote Lecture, "Bat Flight Aeromechanics and Structured Wakes" Laser applications in Fluid Mechanics, Lisbon Portugal. July 2018.
35. Keynote Lecture: "Force Moment partitioning for vortical flows" DisCoVor conference, Breckenridge CO May 2023

Invited seminars

(Complete only since 9/99)

2000

- Presentation at AIAA Aerospace Science Meeting on MEMS Pressure sensors, January 2000.
- Presentation at NIST on Nanotribology, March 2000.
- Invited paper at AIAA Fluid Dynamics meeting. Denver CO. June 2000.

2001

- Invited paper at AIAA Aerospace Sciences Meeting, Jan. 2001.
- Northeastern University. "Active Control of Turbulent Flows". Feb 2001.

- Harvard University “Micron scale fluidic transport”. October 2001.
- Invited Presentation at “Novel Applications in Microfluidics”, DARPA-workshop, Reston VA, Dec 2001.

2002

- Invited Presentation at AIAA Flow Control Conference, St. Louis MO. June 2002.
- Invited Seminar at URI, October 2002.

2003

- Invited presentation, “Bacterial Microfluidics”. Cal Tech. Jan 2003.
- Invited presentation, “To Slip or Not to Slip”. University of California, Santa Barbara. January 2003.
- Invited Lecturer. AFOSR Workshop in Microfluidics. Los Angeles, CA May 2003.
- Invited presentation, “Revisiting the no slip boundary condition” Technion – Israel Institute of Technology. October 2003
- Invited presentation, ““Revisiting the no slip boundary condition” Tel Aviv University. October 2003.
- Invited presentation, “Bacterial Microfluidics”. Weizmann Institute of Science. October 2003.

2004

- Invited Seminar “Microfluidics” MIT. March 2004
- Invited Seminar “Bacterial Microfluidics” U. of Maryland”. March 2004
- Invited Seminar “Microfluidics” Case Western Reserve University”. March 2004
- Invited Seminar “Revisiting the no slip boundary condition” College de France, Paris. June 2004
- Invited Seminar “Revisiting the no slip boundary condition” ESPCI, Paris. June 2004
- Invited Seminar “Bacterial Microfluidics” Marine Biology Laboratory. Woods Hole MA. June 2004.
- Short Course “Microfluidics” University of Queensland, Australia. Nov 2004.
- Invited Seminar “Bacterial Microfluidics”. Australian Institute for Bioengineering and Nanotechnology, Brisbane, Australia. October 2004.
- Invited Seminar “Active Control of Turbulence Shear Flows”. University of Queensland, Brisbane, Australia. Nov 2004.

2005

- Invited Seminar “Revisiting the no-slip boundary condition” Sandia National Laboratory, Albuquerque NM, February 2005
- Invited Seminar “Bacterial Microfluidics” Michigan State University. April 2005
- Invited Lecture “Optical Methods in Microfluidics” ASME/IMECE Symposium. Orlando FL November 2005.
- Invited Seminar. “Microfluidics in Science, Engineering and Biology”. U. Mass. December 2005.

2006

- Invited Lecture “Science and Engineering in Microscale Fluid Mechanics” Lawrence Livermore National Laboratory, Livermore CA, March 2006
- Invited Lecture “Biological Fluid Mechanics – from Bats to Bacteria”. MIT Dept of Civil and Environmental Engineering, Cambridge MA, March 2006.

2007

- Invited Seminar. “Bacterial Microfluidics” University of Chicago, Dept of Physics. February 2007.
- Invited Seminar “Bacterial Microfluidics” Johns Hopkins University. Center for Environmental and Applied Fluid Mechanics. February 2007.
- Invited Seminar “Aeromechanics of Bat Flight”. Mass. Institute of Technology. Dept of Aeronautics and Astronautics. March 2007.
- Invited Seminar. “Random Motions in Small-Scale Fluid Mechanics”. California Institute of Technology. April 2007.

2008

- Invited Speaker “Quantum Dots in Micro and Nanometer Scale Fluid Mechanics” Philips Research Laboratories, Eindhoven (Netherlands) Jan 2008.
- Invited Speaker “Filamentary Mechanics” Twente University (Netherlands) Jan 2008.
- Invited Speaker “Aeromechanics of Bat Flight” Delft University (Netherlands) Jan 2008.
- Invited Speaker “Compliant Membranes in Biological Flight” AFOSR Workshop on Fluid-Structure interactions. Arlington VA. Feb 2008.
- Invited Speaker, “Aeromechanics of Bat Flow” Cambridge University (UK) May 2008.
- Invited Speaker “Mechanics of Bacterial Motility” Royal Institute of Technology, Stockholm, (Sweden) May 2008.
- Invited Speaker “The Physics and Engineering of Bacterial Microfluidics” Massachusetts Institute of Technology, Micro/Nano Technology Seminar Series Cambridge MA Nov 2008.

2009

- Invited Speaker “Drops and Filaments in Microfluidic systems” Department of Physics, University of Lyon, France Feb 2009.
- Invited Speaker “Drops and Filaments in Microfluidic systems” ESPCI, Paris France Feb 2009.
- Invited Speaker “Drops and Filaments in Microfluidic systems” LadHyX, Ecole Superior, Paris France Feb 2009.
- Invited Speaker “The Aeromechanics of Bat Flight”, Dept of Aeronautics, Imperial College, London England, Feb 2009.
- Invited Speaker to Distinguished Speaker Series, Pennsylvania State University, Feb 2009.
- Invited Speaker to “Machines and Organisms” seminar series, Cornell University, March 2009.
- Invited Speaker. “The mechanics of bacterial motility” The Jones Seminar on Science, Technology and Society. Thayer School of Engineering, Dartmouth College. May 2009.
- Invited Speaker to U. Pennsylvania. Dept of Mechanical Engineering and Applied Mechanics “Two problems in micron-scale fluid mechanics” October 2009.

- Invited Speaker to Naval Underwater Warfare Center, Newport RI. “The Physics and Engineering of Bacterial Motility”. December 2009.

2010

- Invited Speaker to NYU Courant Institute “The Physics and Engineering of Bacterial Motility”. April 2010.
- Invited Speaker to NYU-Polytechnic “The aeromechanics of bat flight”. April 2010.
- Invited Speaker to Woods Hole Oceanographic Institute. “Bacterial Motility and Mixing”. July 2010.
- Invited Speaker to Air Force Institute of Technology (AFIT) Distinguished Lecture Series, “Compliant Wing Aeromechanics - from Bats to MAVS”. Dayton OH. Dec 2010.
- Invited Seminar to MIT Physical Mathematics Seminar. “Contact Droplet Deposition and the failure of continuum mechanics”. Dec 2010.

2011

- Invited Seminar to University of British Columbia Chemical Engineering Department Seminar. “Contact Droplet Deposition and the failure of continuum mechanics”. Feb 2011.
- Invited speaker at the University of British Columbia, institute for Applied Mathematics Colloquium, “Bacterial Microfluidics: The physics and engineering of bacterial motility”. Feb 2011.
- Invited seminar at Tufts University “Two problems in micron-scale fluid mechanics” March 2011.
- Invited seminar at Johns Hopkins University. “The aeromechanics of bat flight”. March 2011.
- Invited seminar at the Chinese Academy of Sciences, Laboratory for Nonlinear Sciences “The aeromechanics of bat flight”, September 2011
- Invited seminar at the Chinese Academy of Sciences, Laboratory for Nonlinear Sciences “The mechanics of contact droplet deposition”, September 2011
- Keynote lecture at the International conference for Microscale Fluid Flow and Heat Transfer, Fukuoka (Japan) “Flows near a contact line with and without evaporation”, September 2011
- Invited seminar at Clark University “Swimming in Syrup: The mechanics of bacterial motility”. October 2011
- Invited seminar at New Jersey Institute of Technology “The mechanics of bacterial motility”. December 2011

2012

- Invited seminar, “Bacterial Microfluidics”, at Eindhoven Institute of Technology (Netherlands) January 2012
- Invited seminar, “The Aeromechanics of Bat Flight” at University of Maryland “, April 2012
- Invited seminar, “Biomechanics: from Bacteria to Bats”, UCLA, May 2012.
- Invited speaker at NSF/ARO Workshop on Animal Locomotion in Arlington VA. “The Zen of swimming and Flying”. May 2012.

2013

- Keynote speaker, “The Aeromechanics of Bat Flight”, at Israel Conference on Aerospace Sciences, Tel Aviv (Israel). March 2013
- Keynote Speaker. “Optical Velocimetry at the Nanoscale”. 10th Symposium on Particle Image Velocimetry, Delft (Netherlands), July 2013.

2014

- Invited Speaker. “Swimming in Viscoelastic Media”. Aspen Center for Physics, Winter Workshop on “Active Fluids: Bridging Complex Fluids and Biofluids”, Aspen CO. January 2014.
- Keynote speaker, “Fluids and Elasticity”, at International Conference on Nature-Inspired Technology, Hokkaido (Japan). February 2014.
- Invited speaker, “Fluids and Elasticity”, Dept of Mechanical Engineering, Virginia Tech. April 2014.
- Invited speaker, “Elasticity and bacterial motility”, Dept of Physics, Brandeis University. March 2014.
- Invited lecture, “Adaptive wing structures in bat flight”. ASME Conference on Smart Materials, Adaptive Structures and Intelligent Systems (SMASIS). Newport RI. September 2014.
- Invited lecture, “The Aeromechanics of Bat Flight” Dept. of Mechanical Engineering, Stanford University. October 2014.

2015

- Invited Speaker. “Fluids and elasticity: From bats to tidal energy harvesting”. GALCIT, Caltech, Jan. 2015
- Invited Speaker. “Aeromechanics of Bat Flight”. Department of Mechanical Engineering University of Illinois, Feb 2015
- Invited Speaker. “Large-amplitude aeroelastic instabilities explored using a Cyber-Physical system”. University de Pierre et Marie Curie (UPMC) Paris. April 2015.
- Invited Speaker. “Aeromechanics of Bat Flight”. ESPCI, Paris, April 2015.
- Invited Speaker “Membrane Aerodynamics” Wygnanski Feschcrift, Tel Aviv University, June 2015.

2016

- Invited Speaker. “The Aeromechanics of Bat Flight” LadHyX, Paris France, January 2016
- Invited Speaker. “The Aeromechanics of Bat Flight” Department of Mechanical Engineering, Texas A&M University, March 2016
- Invited Speaker. “The Aeromechanics of Bat Flight” Department of Physics. Boston University, April 2016.
- Invited Speaker. “The role of individual personality in bacterial motility”. Cargese Corsica, July 2017
- Invited Speaker. “Flexibility and Flow”. Department of Mechanical Engineering, University of Washington, Seattle WA. Nov 2016.
- Invited Speaker. “The Aeromechanics of Bat Flight”. Department of Organismal Biology, University of California, Berkeley CA Nov 2016.

2017

- Invited Speaker. “Slip flow at a moving contact line”. ICERM workshop on singularities in fluid mechanics, Brown University, March 2017
- Invited Speaker. “Flexibility and Flow” Department of Mechanical Engineering, University of Houston, Houston TX April 2017.
- Invited Talk: “Experimental approaches and (very) simple models of bio-inspired membrane aerodynamics” AIAA Aerodynamic Decelerator Systems Conference, Denver CO. June 2017
- Invited Seminar. “The surprising connection between bat flight and tidal energy harvesting”. Dept. of Mechanical Engineering, Vanderbilt University, Nashville TN. August 2017.
- Invited presentation (with Sharon Swartz) “BioInspired Design”. HHMI Workshop for Professors Program”. October 2017.
- Invited seminar “The surprising connection between bat flight and tidal energy harvesting”. Dept. of Mechanical Engineering, Texas Tech. Lubbock TX. October 2017.
- Invited presentation “Bat flight: dynamics and control”. Workshop in Biological motion and control. Ohio State Math. Bio. Institute (MBI). October 2017

2018

- Invited Speaker. “Bat Flight Aeromechanics and Structured Wakes”. Imperial College (London) March 2018
- Invited Speaker. “Bat Flight Aeromechanics and Structured Wakes” St Anthony Falls Lab, University of Minnesota, October 2018.

2019

- Invited Speaker. “Bacterial Swimming in Newtonian and non-Newtonian media”. Rockefeller University, NYC April 2019
- Invited Speaker. “Aeromechanics of compliant membranes: from bats to flexible wings”. Waterloo University (Canada) April 2019
- Invited Speaker. “Bacterial Swimming in Newtonian and non-Newtonian media”. Courant Institute, NYU, NYC May 2019
- Invited Speaker “Bacterial motility in Newtonian and non-Newtonian fluids”. Department of Applied Mathematics and Theoretical Physics, Cambridge University September 2019.
- Invited Speaker “Bacterial motility in Newtonian and non-Newtonian fluids”. ESPCI (Paris, France) September 2019.
- Invited Speaker. “The synthesis of dynamical modeling, theory and experiment to understand flapping flight”. Royal Veterinary College (London) October 2019
- Invited Speaker. “Aeromechanics of compliant membranes: from bats to flexible wings”. Imperial College (London) October 2019
- Invited Speaker. “Aeromechanics of compliant membranes: from bats to flexible wings”. Tsinghua University, (Beijing, China) October 2019
- Invited Speaker. “Bacterial Swimming in Newtonian and non-Newtonian media”. Tsinghua University, (Beijing, China) October 2019
- Invited Speaker. “Aeromechanics of compliant membranes: from bats to flexible wings”. Northwestern Polytechnic University, (Xi’an, China) October 2019

- Invited Speaker. “Bacterial Swimming in Newtonian and non-Newtonian media”. Northwestern Polytechnic University, (Xi’an, China) October 2019
- Invited Speaker. “The synthesis of dynamical modeling, theory and experiment to understand flapping flight”. Shanghai University (Shanghai, China) October 2019
- Invited Speaker. “The roles of Aerodynamics and Inertia in Flapping Flight”. Tel Aviv University, Faculty of Zoology. November 2019.
- Invited Speaker. “Bioinspired Aeromechanics: bat flight to energy harvesting”. Tel Aviv University, Faculty of Engineering. November 2019.

2020

- Invited Speaker. “Bioinspired Aeromechanics: bat flight to energy harvesting”. Penn. State University, Dept of Mechanical Engineering,. October 2020 (Virtual).

2021

- Invited Speaker. “Bat flight and wing compliance”. International Zoom seminar series on Biophysics October 2021 (Virtual).
- Invited Speaker. “Leading Edge Vortices”. Levich Institute, CUNY December 2021 (Virtual).

2022

- 02 May. Invited seminar at Northwestern University (Evanston IL) "Two tales of fluid-structure interactions"
- 22 May. Invited seminar at EPFL (Lausanne, Switzerland) ""Two tales of fluid-structure interactions"
- 16 Aug. Invited talk at Gordon Conference "Contamination in Confined Spaces: Experimental and Numerical Frontier Challenges"
- 04 Nov. Invited seminar at U. Colorado (Boulder CO) "What can animals teach us about aerodynamics?"
- 14 Nov. Invited seminar at Colorado School of Mines (Golden CO) "The surprising connections between animal flight and tidal energy harvesting"

2023

- Feb 2023 Invited seminar at Princeton University, Dept of Mech. Engin. "What can animals teach us about aerodynamics?"
- Feb 2023 Invited seminar (online) at U. Warwick, UK "What can animals teach us about aerodynamics?"
- March 2023. Invited seminar (online) Experiments in Fluids “Damping due to shed vortices and the Force Moment Partitioning Method.
- April 2023 Invited seminar at UIUC (Urbana IL) "What can animals teach us about aerodynamics?"
- May 2023 Keynote Lecture “Force Moment partitioning for vortical flows” DisCoVor conference, Breckenridge CO
- May 2023 Invited lecture at the Martin Maxey Feshcrift “Transport and Sedimentation in Active Media” Providence RI
- Nov 2023 Invited lecture at Joe Katz Feshcrift, Washington DC.

2024

- March 2024. Invited Seminar at University of Florida, Gainesville. Dept of Aerospace Engineering. “What can animals teach us about aerodynamics?”
- October 2024 Invited seminar at MIT, Dept of Civil and Environmental Engineering “Formation Flight and High-Density Tidal Energy Harvesting: Taking Advantage of Coherent Vortex Wakes”

2025

- Jan 2025 Invited seminar at Caltech GALCIT “Formation Flight and High-Density Tidal Energy Harvesting: Taking Advantage of Coherent Vortex Wakes”.
- September 2025. Invited seminar at UMass, Dept of Mechanical Engineering “Formation Flight and High-Density Tidal Energy Harvesting: Taking Advantage of Coherent Vortex Wakes”
- September 2025. Invited seminar at UPenn, Dept of Mechanical Engineering “Formation Flight and High-Density Tidal Energy Harvesting: Taking Advantage of Coherent Vortex Wakes”
- December 2025. Invited seminar at U Wisconsin, Dept of Mechanical Engineering “What can Animals teach us about Fluid Mechanics?”.

Outreach Activities (only started tracking in 2013)

2013

- Featured booth (invited by NSF) explaining our research to the general public at the AAAS Annual Meeting in Boston. Feb 2013
- Featured on “Smarter Every Day” Extended web episode (<http://www.youtube.com/watch?v=LxzyAadoyzY>). April 2013
- Participated in K-12 STEM day at Vartan Gregorian School, April 2013
- Featured speaker and session leader for “Communicating Science” workshop at Brown. June 2013.

2014

- Public lecture at the Aspen Opera House, “How Bacteria Move”, Feb 2014 (over 300 members of the public in attendance)
- Open house for Providence Community, as part of Brown 250th. March 2014
- Presentation to Middle School group from Providence Schools, March 2014
- Science Underground presentation on Bat Flight, Flatbread in Providence RI. December 2014 (with Sharon Swartz), ~ 100 members of the public in attendance.

2015

- Science Visualization Lecture by Nicole Sharp, editor of FuckYeahFluidDynamics.tumblr.com. Public lecture to ~100 attendees (Organizer).
- Science Visualization Hackathon (Organizer). November 13th 2015. 40 students and members of the public

2016

- Public lecture, A Day on College Hill (ADOCH) to students considering attending Brown University. April 2016

2017

- Collaboration with French Mathematician, Cedric Villani, to produce a series of filmed conferences popularizing science. January 2017 (extended to TV distribution in March 2018).

2018

- Science Friday: NPR segment of bat flight, web-video with interviews (with Sharon Swartz), March 2018.
- “Dracula – A song of Love and Death” by Mitch Brian. Kansas City Actors Theatre. Contributed videos of bat flight for stage production. October 12-21 2018.

2021:

- Featured (interviewed) on “Bat Superpowers”. Film documentary aired on PBS-NOVA. June 2021

2022:

- Jun 8. Presentations at Vartan Gregorian Elementary School Science Fair on Renewable Energy.

2023:

- Feb : Host to French Documentary Film Crew on Bat flight (with Sharon Swartz)
- Nov: Featured photo article National Geographic Magazine (Photograph of the year 2023, and Time Magazine top 100 photographs 2023)

Patents

1. “Microturbomachinery” A. H. Epstein, S. D. Senturia, I. A. Waitz, J. H. Lang, S. Jacobson, F. F. Ehrich, M. A. Schmidt, G. K. Ananthasuresh, M. S. Spearing, K. S. Breuer, and S. F. Nagle. U. S. Patent # 5932940. Issued: Aug 3 1999. Patent # 6392313 May 21, 2002.
2. “Method and apparatus for reducing turbulent drag”, George Em Karniadakis, Kenneth Breuer, Vasileios Symeonidis. U.S. Patent #6520455. Issued: Feb 18, 2003
3. “Kinetic Energy Harvesting using Cyber-Physical Systems”. Shreyas Mandre, Kenneth Breuer, Benjamin Strom, Michael Miller, Jennifer Franck, Daegyoun Kim US Patent #10087910B2. Issued: Oct 2 2018.
4. “Sensing and Control of Flows over Membrane Wings” Jillian Bohnker and Kenneth Breuer. US Patent #11467058B2. Issued Oct. 11 2022.
5. “Free Streamline Airfoil”. Matteo Di Luca and Kenneth Breuer Patent filed, November 2021
6. “Bio-inspired flapping wing/fin robotic platform”. Xiaozhou Fan and Kenneth Breuer. US Patent 12,441,468. Issued 2025.

Research in Progress

1. Vertebrate motility: bat and bird flight, fish maneuvering
2. Energy harvesting from fluid flows – wind and water.
3. Fluid Structure interactions
4. Vortex dynamics

Service

University

Completed:

- Faculty Representative for Brown ASME Chapter. (1999 – 2000)
- Faculty Representative for Brown AIAA Chapter. (2000 – 2001)
- Graduate Representative for Fluids, Thermal and Chemical Processes group. (2000 – 2001)
- Member, University committee on Laser Safety (sub-committee of Radiation Safety Committee). (1999 -2004)
- Member, Radiation Safety Committee. (2000 – 2004)
- Member Engineering Executive Committee (2001 – 2004)
- Director of Graduate Studies, Division of Engineering (2001 – 2004)
- Chair faculty search committee, Fluid Mechanics (2003)
- Member of University Steering Committee for Brown - Woods Hole Relations (2002 – 2004)
- Member, University Committee on Resumed Undergraduate Education (2004 – 2008)
- Graduate Representative for Fluids, Thermal and Chemical Processes group. (2005 - 2007)
- Member, Executive Committee, Wayland Collegium (2005 – 2008)
- Member, Engineering Executive Committee (2006)
- Chair, search committee for Micro- and Nano-fluid mechanics faculty.
- Engineering Representative to Undergraduate Admissions office (2006 – 2010).
- Freshman Advisor (2000 – 2009)
- Graduate representative to School of Engineering for Fluids and Thermal Sciences (2009 – 2011)
- Presenter at Brown University Ethics training workshop (BEARCORE). June 2011
- Senior Honors co-coordinator, School of Engineering, (2010 - 2011).
- Tenure, Promotion and Appointments Committee (TPAC) (AY2009-12. Vice chair AY2010-11, Chair AY2011-12)
- Member of University Committee to plan for new Physical Sciences Building (2010-2012).
- Chair of promotion committee for Professor P. Vlahovska
- University Mace Bearer (2010 – 2013)
- Member: Presidential Committee on Undergraduate Curriculum (Sept 2012 – June 2013)
- Chair, Working Committee for the Engaged Scholars Program (Sept 2013 – June 2014)
- Senior Associate Dean for Academic Programs, School of Engineering, (Sept 2011 – June 2014)

- Representative for Fluids and Thermal Sciences (FTS) to Engineering Executive Committee (Jan 2011 – Dec 2014).
- Graduate representative, Fluids and Thermal Sciences (Fall 2014)
- Chair, Committee on the core curriculum, School of Engineering (October 2013 – Jan 2015)
- Faculty representative for ASME Chapter in School of Engineering (Sept 2012 – 2016)
- School of Engineering, Study abroad advisor (September 2015 – 2016)
- Member: Committee on Laboratory Design for New Engineering Building (Fall 2014 - 2017)
- Member, Steering Committee for the Engaged Scholars Program (Sept 2013 – 2017) (Committee assumed inactive)
- Mentor to new faculty (Shreyas Mandre, Petia Vlahovska)
- Chair, Search committee for new faculty in Fluids and Thermal Sciences (2017)
- Chair, Search committee for new faculty in Fluids and Thermal Sciences (2018-9)
- Chair, Tenure review committee for Prof Shreyas Mandre (Sept 2017 – May 2018)
- Member, selection committee for recent alumni member of the Brown Corporation (Jan 2018)
- School of Engineering, Curriculum committee (Sept 2016 – 2018)
- Member, Academic Priorities Committee. (September 2015 – 2018); Vice Chair 2017-2018.
- Member, University Nominations Committee (2019-2021)
- Engineering Executive Committee (Sept 2017 – May 2022)
- Mentor to new faculty (Dan Harris, Jesse Ault)
- Member, Faculty search committee for Sustainable energy in the School of Engineering (2023)
- Member, Faculty search committee for Mechanics in the School of Engineering (2024-2025)
- Member, University Steering Committee on Sustainability (2020 - 2025)

Current:

- Freshman and Sophomore Advisor (since 1999)
- School of Engineering, Engaged Scholarship Program representative (September 2015 – present)
- Chair, School of Engineering Committee to revise the Core Curriculum (2022 -)
- Member, Faculty search committee for Targets of Opportunity in the School of Engineering (2023 -)
- Member advisory committee to design the renovation of Prince Laboratory (2024 -)

Community

Completed:

- Member, AIAA Technical Committee on Aerodynamic Measurement Technologies (1998 – 2001)
- Member, American Physical Society, Division of Fluid Dynamics Publications Committee (1999 – 2002)

- Chair, American Society of Mechanical Engineering Microfluidics Organization Committee (2000 – 2002)
- Vice-Chair, ASME Micro and Nano Fluid Dynamics Technical Committee. (2002 – 2003)
- Member of AIAA Committee on Flow Control, Architectures and Algorithms (2002 – 2007)
- Associate Editor, Journal of Fluids Engineering (2003 – 2006)
- Chairman, ASME Micro and Nano Fluid Dynamics Technical Committee. (June 2004 - 2006)
- Co-Chair. ASME NanoInstitute Committee on Nanoscale Phenomena (Dec 2003 – 2007)
- Associate editor, emicro-nano.com (Microfluidics web site) (Dec 2003 – 2008)
- Member of American Physical Society, Division of Fluid Dynamics Nominations Committee (2004 - 2007)
- Co-Organizer, International Symposium on Fluid Flow and Heat Transfer at the Microscale, Whistler, BC. September 2008.
- Advisory Board for International Symposium on Nature-Inspired Technology, JeJu S. Korea, June 2009.
- Chair APS/DFD Program Committee (Nov 2009- Nov 2010)
- Chair APS/DFD Fellowship Committee (Nov 2010 – Nov 2011)
- Vice Chair, Chair-Elect and Chair, American Physical Society, Division of Fluid Dynamics. (Nov 2009 – Nov 2012)
- Co-organizer, Fourth International Symposium on Fluid Flow and Heat Transfer in Microchannels, Tokyo JP September 2010.
- Co-organizer of NSF Workshop Mathematical and Computational Challenges in Cilia- and Flagella-Induced Fluid Dynamics. Columbus OH, October 2012.
- Chair, APS/DFD Fluid Dynamics Prize Selection Committee. 2015-2016
- Associate Editor Microfluidics & Nanofluidics (Springer), 2003 – 2017
- Member, University of Eindhoven (Netherlands) High-Tech Systems Center (HTSC) International Advisory Board. (2015 – 2020)

Current:

- Reviewer for numerous archival journals, including: PNAS, Science, Nature, J. Fluid Mech. Phys Fluids, Phys. Rev. Lett., Phys Rev E. Phys Ref Fluids, Microfluidics & Nanofluidics, J. Fluids Engineering, Experiments in Fluids, AIAA Journal, Eur. Journal of Mechanics, Appl, Phys Lett. J. Exp Biology, PLOS One, PLOS Biology (Since 1990).
- Panel reviewer for National Science Foundation, Dutch Academy of Arts and Sciences, German Research foundation, Qatar Research Foundation, European Science Foundation, Israeli Science Foundation. (Since 1990), Office of Naval Research.
- Associate Editor International Journal of Heat Transfer and Fluid Flow (Elsevier) (Since 2007)
- Member of executive committee, Assembly of World Conferences on Experimental Heat Transfer, Fluid Mechanics and Thermodynamics (Since Sept 2009)
- Member (2021-2023), Chair (2024) Past chair (2025) APS Committee on the International Freedom of Scientists (CIFS)
- Member, APS/DFD committee on Diversity and Inclusion (2025 – present)
- Member Tuft University, Dept. of Mechanical Engineering Advisory Board.

Honors and awards

- President's award for Faculty Service, Brown University. 2022
- Dean's award for Mentoring, Brown University, School of Engineering. 2020
- Fellow, American Society of Mechanical Engineers (ASME), 2013.
- Associate Fellow, American Institute of Aeronautics and Astronautics (AIAA), 2013.
- Fellow, American Physical Society (APS), 2010.
- Paris Sciences Professor. March – May 2015.
- Chair, American Physical Society - Division of Fluid Dynamics (2011-2012).
- Brown University Mace Bearer (2010 – 2013) – lead official university processions (Convocation, Commencement, etc.)
- Midwest Mechanics Lecturer in Fluid Mechanics, 2006/7
- Harold and Esther Edgerton Associate Professor of Aeronautics and Astronautics, MIT 1996-98.
- ONR Graduate Fellowship (NDSEG) 1982-86.
- National Merit Scholar, 1978.
- Keynote Speaker invitations: ASME Nano2005, (Berkeley CA, 2005), IUTAM Symposium on Turbulence Control (London, UK, 2006), International Symposium on Nature-Inspired Technology (JeJu S. Korea, 2009), International Symposium on Fluid Flow and Heat Transfer at the Microscale (Fukuoka, Japan 2011), Israel Conference on Aerospace Sciences (Tel Aviv, Israel 2013), PIV2013 (Delft, Netherlands, 2013), International Symposium on Nature-Inspired Technology (Hokkaido, Japan, 2014).
- NSF/Science Magazine. Visualization Contest: First place 2007
- Featured in mass media: PBS NOVA, *The four-winged dinosaur*. (2008); Science Discovery Channel, *Weird Connections* (2009); BBC, *Invisible Worlds* (2009); NPR Science Friday (2018).
- Invited as external thesis examiner: Royal Institute of Technology, Sweden (1998); Eindhoven Institute of Technology, Netherlands (Jan 2012).

Students supervised (as primary supervisor)

Sc.B. (Honors) theses

At MIT:

1. Winchesley Vixama, "The effects of oscillating vortex generators on the flow about an airfoil." December 1991.
2. Lawrence Kaye, "The effect of oscillating vortex generators on airfoil performance." December 1991.
3. Victor Owuor, "An Investigation of chaos in a compound pendulum." December 1991.
4. Jean Yoshii, "Chaotic dynamics of a double pendulum." December 1991.
5. Patrick A. Cazeau, "The use of vortex frequency for wind speed control." December 1991.
6. Kathryn A. Fricks, "The use of vortex frequency for wind speed control." December 1991.
7. George R. Nagy, "Acoustic damping in a diverging duct." December 1991.
8. Joseph E. Dennis, "Acoustic damping in a diverging duct." December 1991.
9. Jeff LaDelfa, "Measuring low level turbulence in non-ideal conditions." December 1992.

10. Irene Budiando, "Measurement of fluctuating velocities in non-ideal conditions." December 1992.
11. Duane Ludwig, "Optimizing the Boundary layer trip." May 1993.
12. Melissa Wright, "Optimizing the Boundary layer trip." May 1993.
13. Heather Howard, "Unsteady lift on delta wings." December 1993.
14. Mario Campas, "Unsteady lift on delta wings." December 1993.
15. Benjamin Torres, "Control of diffuser separation using bumps." December 1994.
16. Zachira Castro, "Control of diffuser separation using bumps." December 1994.
17. Ben Erwin, "Low drag surfaces for Satellites." December 1995.
18. Yannick Trottier, "Low drag surfaces for Satellites." December 1995.
19. Dylan Glas, "Propulsion for micro-aircraft". June 1997.
20. Jaime Amaya, "Propulsion for micro-aircraft". June 1997.
21. Parag Dave, "Drag reduction using textured surfaces", June 1998.
22. Kelvin Khong, "Drag reduction using textured surfaces", June 1998.

At Brown:

23. Vanvisa Attaset "Mechanics of Confined Drops in Shear Flows, June 2002.
24. James Bird "Dynamics of bacterial flagella entanglement". June 2003.
25. Ilissa Schild "Dynamics of confined Droplets". June 2003.
26. Ravi Sirvanasum. "Design and Performance of a DSP-based PIV analyzer, June 2003.
27. Alexis Crow (Chemical Physics) "Dynamics of DNA molecules near a solid surface" June 2005.
28. Joseph Wofford "Particle image velocimetry in the wake behind bats" June 2005.
29. Emily Israeli "Dynamics of flexible airfoils" June 2006.
30. Ricardo Galvao "Dynamics of flexible airfoils" June 2006.
31. Anthony Zorzos "Characteristics of Droplets emitted from a Taylor Cone. June 2007.
32. Matthew Novick, "Vibration of an aeroelastic wing due to vortex shedding" June 2008.
33. Alex deQuitry "Holographic Imaging of an Electrospray". June 2009.
34. David Gagnon "Synchronization induced by hydrodynamic interactions" June 2010.
35. Ben Howard "High speed photography of ultrasonic atomization" June 2010.
36. Adam Hoffman "Diffusion limited evaporation in microchannels: Evaporative enhancement at the microscale" June 2010.
37. Jun Kudo "Particle Image velocimetry vortex simulation and design of displaced light sheet system" June 2010.
38. Alex Carerre. "Aerodynamic Characteristics of a Compliant Membrane Wing Model using a Dielectric Elastomer", May 2012.
39. Ian Brownstein. "Plasma actuators for control of wind turbine aerodynamics", May 2013.
40. Benjamin Strom "Energy harvesting from unsteady wing motion", May, 2013.
41. Rebecca Corman "Non-Newtonian effects in micro valve operation", May 2013
42. Ryan McKeon "Personal cooling using a vortex gun", May 2014.
43. Colden Eldridge "Plasma Actuators for Unsteady control of Wind Turbine Aerodynamics", May 2014.
44. Michael Manning "Wake structure behind tandem energy harvesting hydrofoils", May 2016.
45. Walker Lee "Wake structures behind energy harvesting hydrofoils" May 2018.
46. Quincy McKown "Design of a low speed wind tunnel" May 2018.

47. Kit Sum (Katie) Wu “Scaling and performance of a bio-inspired flapping wing with passive pitch”. May 2019. (Winner of 2019 Brown University Distinguished Thesis Award)
48. Eric Shaw “Aerodynamics of a free-streamline wing” May 2020 (May 2020).
49. Howon Lee “Vortex Trajectories in Energy Harvesting systems” (May 2021)
50. Nicholas Simone “Energy Harvesting with tandem foils” (May 2021)
51. Albin Wells “Nonlinear elastic behavior of silicone membranes (May 2021)
52. Ilan Upfal “Optimal behavior of membrane foils for energy harvesting (May 2022)
53. Alex Koh-Bell “Active Gurney flap for wind turbine applications” (May 2022)
54. Jay-Young Cho “Pressure drop and deformation of face mask materials” (May 2022)
55. Dan Marella “Dynamic Effects of Ground Plane Proximity in Quadrotor Flight” (May 2024)
56. Christopher Bianco “Flexible Hydrofoils for Enhance Energy Harvesting” (May 2025)
57. Keller Morrison “The performance of offshore wind turbines” (May 2025)

Sc.M. theses

At MIT:

1. Takeo Kuraishi, “Transient growth in two- and three-dimensional boundary layers.” December, 1991
2. Didier Hazan, “A new model for aircraft ice accretion.” August 1993.
3. Errol Arkilic, “Gaseous flow in micro-machined channels.” January 1994.
4. Margaret Grimaldi, “Roughness effects on the transition to turbulence.” May 1994.
5. Ruben Rathnasingham, “Coupled fluid-structural characteristics for actuators for flow control.” September 1995.
6. Ed Piekos “Numerical simulation of micro fluid flows.” September 1995.
7. D.J. Orr “Roughness effects on aircraft ice accretion.” June 1996.
8. Jay Moore, “Measurement of Surface Temperature on a highly-swept wing with suction.” June 1996.
9. Ernest Spevak, “Turbulence correlations in confluent boundary layers.” September, 1996
10. Benjamin Torres, “Measurement of roughness-enhanced heat transfer using Infra-Red techniques.” June 1996.
11. Peter Kwok. “Viscous damping in micromachined devices”. June 1999.
12. Nicolas Savoulides. “Dynamics of high speed microfabricated gas bearings”. Dec 1999.
13. Eugene Kang. “Modeling and fabrication of actuators for flow control”. Jan 2000.
14. Jorge Carretero. “Modeling and testing of a micromachined pumping system”. Jan 2001.

At Brown:

15. Pong Yu (Peter) Huang “ElectroOsmotic Mixing in Microchannels” May 2003.
16. Chang-Hwan Choi “Flow rate and slip flows of Liquids in Microchannels”. May 2003.
17. Maureen McCamley “Effects of Lorentz force actuation on turbulent channel flow”. May 2004.
18. Kevin Wu “Progress towards active control of turbulent shear flows” May 2004.
19. Siran Manghoulchal “Control of bacterial motion”. May 2005.
20. Melissa Loureico. “Droplet Deposition”. Co-advised with A. Tripathi. May 2008
21. Sean Kitchner. “Mechanics of Bat Bones”. Co-advised with S. Swartz. January 2009.

22. Sara Burgland “Modeling channel flow over superhydrophobic surfaces”. June 2010.
23. Rick Qi. “High speed motion generated by an oscillating microfiber”. June 2010.
24. Jillian Kiser “Plasma flow actuators for improved wind turbine performance”, May 2014.
25. Xiongfeng Yi “Microrheology of biological fluids”, May 2015.

Engineer’s theses

At MIT:

1. Raghav Gorur, “Numerical Techniques Applied to the Simulation of Low Magnetic Reynolds Number Flows and of Eddy Currents in Electromagnetic Levitation Systems.” January 1993

Doctoral theses

(Current position listed, if known)

At MIT:

2. Peter O’Sullivan, “Transient growth in laminar pipe flows.” (Degree conferred by Brown University) October 1993.
3. Errol Arkilic, “Mass Flows and Tangential Momentum Accommodation in Silicon Micromachined Channels.” December 1996. (Program Manager, NSF)
4. Aravind Padmanabhan, “Microfabrication of floating element shear stress sensor for wind tunnel applications.” January 1997. (Director of Global Technology, Honeywell)
5. Ruben Rathnasingham, “System Identification and Active Control of Turbulent Boundary Layers”. June 1997. (Serial Entrepreneur, Silicon Valley)
6. Robert Bayt “MEMS-based propulsion for space applications” June 1999. (NASA Johnson)
7. DJ Orr, “Performance of Micromachined High Speed Gas Bearings”, Sept 1999. (Analyst, MSCI)
8. Rudy King, “Acoustic Receptivity due to Three-Dimensional Surface Roughness.” Nov 1999. (Scientist, NASA Langley)
9. Ed Piekos, “Numerical Modeling of Micromachined Devices.” Dec 1999. (Scientist, Sandia National Labs)
10. Jinwoo Bae “Active Control of Tip Clearance Flows”, June 2001. (Manager, ILJIN Semiconductor, S. Korea)

At Brown:

11. MinJun Kim, “Bacterial Microfluidics”, September 2005. (Presently: Professor, SMU.)
12. Peter Huang. “Slip flows in Near Wall Viscous Flows” September 2006. (Presently: Assoc. Prof, SUNY Binghamton)
13. Jeffrey Guasto, “Micro- and Nano-scale Colloidal Dynamics Near Surfaces”, September 2008. (Presently: Assoc. Prof, Tufts University)
14. Qian Bian, “Two problems in Viscous Flows” May 2010 (Presently: Beckman-Coulter)
15. Charles Peguero, “On the Manufacture and Application of Superhydrophobic Surfaces for Skin Friction Reduction in Laminar and Turbulent Flows” December 2011. (Presently: Naval Surface Warfare Center)
16. Joseph Bahlman, May 2012 (Ecology and Evolutionary Biology, Co-advised with Professor S. Swartz). (Presently: Assoc Prof. Cal State San Francisco)

17. Arnold Song, “Aeromechanics of Highly Compliant Structures: Bat wings, compliant membranes and flexibly mounted flat plates” May 2013. (Presently: High-performance computing center, Dartmouth College, Hanover NH)
18. Rye Waldman. PhD Candidate. October 2013. (Following Brown: Post Doc at Iowa State)
19. Cosima Schunk. September 2010 –2016. (Co-advised with Professor S. Swartz).
20. Joon Sik Park, September 2012 – 2016. (Intel Corp.)
21. Kyouhei Inoui, September 2012 – 2016. (Honda Aerospace)
22. Yi Fan, September 2011 – 2018. (Google)
23. Xijie Qu September 2014 – 2018 (Asst. Prof. Shanghai Jiao Tong University)
24. Yunxing Su, September 2013 – 2019 (Post Doc, Brown University, now Asst. Prof UMinn Duluth)
25. Jillian Bohnker 2014 – 2019 (NUWC, Batelle Labs, Columbus OH).
26. Gali Alon, September 2015 – 2021 (Rafael Industries, Israel).
27. Matteo di Luca 2016 – 2021. (Post Doc, University of Geneva)
28. Asimanshu Das 2018-2021 (PhD not completed under my supervision, Archer Aerospace)
29. Yuanhang Zhu 2018-2022 (Asst. Prof UC Riverside)
30. Xiaozhou Fan 2018-2023 (Post Doc Caltech, Asst Prof HKUST Guangzhou)
31. Siyang Hao, 2020 – 2025 (Postdoc, UVA)
32. Eric Cardenas-Handy 2021 – present
33. Eva Erikson 2022 – present
34. Ronan Gissler 2022 – present
35. Anoop Kiren 2022 – present

Post-Doctoral training

(First position after Brown, if known)

At MIT:

- Mark Sheplak, 1997 – 1999 (Professor, University of Florida)
- Stuart Jacobson 1997 – 1999 (DEKA)
- Anju Nayar, 1997 – 1999.

At Brown:

1. Gengxin Han, 2000 – 2001. (Navistar)
2. Johan Westin, 2000 – 2001. (Vattenfall, Sweden)
3. Jinil Park, 2000 – 2003. (Professor, Ajou University, S. Korea)
4. Michael Muller 2002 – 2003. (Dir. of Engineering, FS-Elliott)
5. Xiaodong Tian 2005 – 2006. (Senior Principal Engineer, Hazan & Sawyer)
6. David Willis 2006 – 2007. (Assoc. Professor, U.Mass Lowell)
7. Tatjana Hubel 2007 – 2009. (Senior Scientist, Roy. Veterinary College)
8. Jennifer Franck, September 2009 – 2011. (Assoc. Prof. U. Wisconsin)
9. Attila Bergou, January 2010 – July 2012 (DE Shaw, NYC)
10. Oscar Curet, March 2010 - October 2012 (Prof., Florida Atlantic University)
11. Tony Yu Jan 2011 – Dec 2012. (Software Engineer, indeed.com)
12. Bin Liu, Sept 2010 – Aug 2013 (Assoc. Prof at UC Merced)
13. Rhea von Busse 2010-Aug 2013 (joint supervision with S. Swartz; Education Director, S.Dakota Science Center)

14. Daegyoun Kim, May 2013 – July 2014 (Asst. Prof. KAIST, S. Korea)
15. Zeynep Temel, May 2014 – October 2015 (Asst. Prof, CMU).
16. Hamid Vejdani, January 2015 – Sept 2017 (Asst. Prof, Lawrence Technological University).
17. Kyohei Onoue, June 2016 – May 2017. (Honda Aerospace).
18. Yi Fan, May 2018 – Jan 2019 (Google).
19. Kristy Schleuter-Kuck, Aug 2018 – Sept 2019, (Staff Scientist, Broad Institute)
20. Varghese Matthai (July 2018 – Aug 2020). (Asst Prof, U Mass)
21. Guillaume Durey (May 2019 – Dec 2020) (Outreach coordinator, CERN, Geneva)
22. Juhi Chowdhuri (July 2021 – March 2022)
23. Sonja Friman (May 2020 – 2022) Co-advised with Ty Hedrick, UNC (Post Doc at U. Lund)
24. Joel Newbolt (Aug 2021 – Dec 2023) (Engineer, PI-Polytech)
25. Xiaowei He (Feb 2022 – Dec 2023) (Asst. Prof. U Utah)
26. Bridget Benner (Aug 2024 – July 2025) (Asst. Prof. U. Wyoming)
27. Alex Gehrke (Feb 2023 -)
28. Dipan Deb (Jan 2024 -)
29. Pedro Ormonde (Feb 2024 -)
30. Olivia Pomerenk (July 2025 -)