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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. [\[doi\]](#).
9. K Breuer and R Everson. (1992). On the errors incurred calculating derivatives using Chebyshev Polynomials. *J. Comput. Phys.*, **99** (1) pp. 56--67. [\[doi\]](#).
10. K Breuer and T Kuraishi. (1994). Transient growth in two-dimensional and three-dimensional boundary layers. *Phys. Fluids*, **6** (6) pp. 1983--1993. [\[doi\]](#).
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.
13. PL OSullivan and KS Breuer. (1994). Transient growth in circular pipe flow. II. Nonlinear development. *Phys. Fluids*, **6** (11) pp. 3652--3664.
14. K Breuer. (1995). Stochastic calibration of sensors in turbulent flow fields. *Exp. Fluids*, **19** (2) pp. 138--141. [\[doi\]](#).
15. S Dinavahi, K Breuer, and L Sirovich. (1995). Universality of probability density functions in turbulent channel flow. *Phys. Fluids*, **7** (5) pp. 1122--1129. [\[doi\]](#).
16. RC Henry, RJ Hansman Jr, and KS Breuer. (1995). Heat transfer variation on protuberances and surface roughness elements. *J. Thermophys. Heat Transf.*, **9** (1) pp. 175--180. [\[doi\]](#).
17. KS Breuer, EG Dzenitis, J Gunnarsson, and M Ullmar. (1996). Linear and nonlinear evolution of boundary layer instabilities generated by acoustic-receptivity mechanisms. *Phys. Fluids*, **8** (6) pp. 1415--1423. [\[doi\]](#).
18. A Padmanabhan, H Goldberg, K Breuer, and M Schmidt. (1996). A wafer-bonded floating-element shear stress microsensor with optical position sensing by photodiodes. *J. Microelectromechanical Syst.*, **5** (4) pp. 307--315. [\[doi\]](#).
19. E Arkilic, M Schmidt, and K Breuer. (1997). Gaseous slip flow in long microchannels. *J. Microelectromech. Syst.*, **6** (2) pp. 167--178. [\[doi\]](#).

20. K Breuer, J Cohen, and J Haritonidis. (1997). The late stages of transition induced by a low-amplitude wavepacket in a laminar boundary layer. *J. Fluid Mech.*, **340** pp. 395--411. [\[doi\]](#).
21. R Rathnasingham and K Breuer. (1997). Coupled fluid-structural characteristics of actuators for flow control. *AIAA J.*, **35** (5) pp. 832--837. [\[doi\]](#).
22. R Rathnasingham and KS Breuer. (1997). System identification and control of a turbulent boundary layer. *Phys. Fluids*, **9** (7) pp. 1867--1869.
23. EB Arkilic, MA Schmidt, and KS Breuer. (1998). Sub-nanomol per second flow measurement near atmospheric pressure. *Experiments in Fluids*, **25** (1) pp. 37--41. [\[doi\]](#).
24. S Janson, H Helvajian, and K Breuer. (1999). Micropropulsion systems for aircraft and spacecraft. *Microengineering Aerosp. Syst.*
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. [\[doi\]](#).
26. K Amonlirdviman and KS Breuer. (2000). Linear predictive filtering in a numerically simulated turbulent flow. *Physics of Fluids*, **12** (12) pp. 3221--3228. [\[doi\]](#).
27. A Ayon, R Bayt, and K Breuer. (2001). Deep reactive ion etching: A promising technology for micro- and nanosatellites. *Smart Mater. Struct.*, **10** (6) pp. 1135--1144. [\[doi\]](#).
28. EB Arkilic, KS Breuer, and MA Schmidt. (2001). Mass flow and tangential momentum accommodation in silicon micromachined channels. *J. Fluid Mech.*, **437** pp. 29--43. [\[doi\]](#).
29. RL Bayt and KS Breuer. (2001). Analysis and testing of a silicon intrinsic point heater in a micropropulsion application. *Sens. Actuators*, **91** (3) pp. 249--255. [\[doi\]](#).
30. RA King and KS Breuer. (2001). Acoustic receptivity and evolution of two-dimensional and oblique disturbances in a Blasius boundary layer. *J. Fluid Mech.*, **432** pp. 69--90.
31. N Savoulides, K Breuer, S Jacobson, and F Ehrich. (2001). Low-order models for very short hybrid gas bearings. *J Tribol.*, **123** (2) pp. 368--375. [\[doi\]](#).
32. M Sheplak, A Padmanabhan, M Schmidt, and K Breuer. (2001). Dynamic calibration of a shear-stress sensor using Stokes-layer excitation. *AIAA J.*, **39** (5) pp. 819--823. [\[doi\]](#).
33. KS Breuer. (2002). Design, fabrication and performance of MEMS actuators for flow control. *Flow MEMS Von Karman Inst. Lect. Ser.*
34. R King and K Breuer. (2002). Oblique transition in a laminar Blasius boundary layer. *J. Fluid Mech.*, **453** pp. 177--200. [\[doi\]](#).
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. [\[doi\]](#).
37. M Kim, JC Bird, AJ Van Parys, KS Breuer, and TR Powers. (2003). A macroscopic scale model of bacterial flagellar bundling. *Proceedings of the National Academy of Sciences*, **100** (26) pp. 15481--15485. [\[doi\]](#).
38. R Rathnasingham and K Breuer. (2003). Active control of turbulent boundary layers. *J. Fluid Mech.*, **495** pp. 209--233. [\[doi\]](#).
39. KJA Westin, CH Choi, and KS Breuer. (2003). A novel system for measuring liquid flow rates with nanoliter per minute resolution. *Experiments in Fluids*, **34** (5) pp. 635--642. [\[doi\]](#).
40. KS Breuer, J Park, and C Henoch. (2004). Actuation and control of a turbulent channel flow using Lorentz forces. *Physics of Fluids*, **16** (4) pp. 897--907. [\[doi\]](#).

41. N Darnton, L Turner, K Breuer, and HC Berg. (2004). Moving Fluid with Bacterial Carpets. *Biophysical Journal*, **86** (3) pp. 1863--1870. [\[doi\]](#).
42. G Han, J Bird, K Johan, A Westin, Z Cao, and K Breuer. (2004). Infrared diagnostics for measuring fluid and solid motion inside silicon microdevices. *Microscale Thermophys. Eng.*, **8** (2) pp. 169--182. [\[doi\]](#).
43. S Jin, P Huang, J Park, J Yoo, and K Breuer. (2004). Near-surface velocimetry using evanescent wave illumination. *Exp. Fluids*, **37** (6) pp. 825--833. [\[doi\]](#).
44. MJ Kim and KS Breuer. (2004). Enhanced diffusion due to motile bacteria. *Phys. Fluids*, **16** (9) pp. L78-L81. [\[doi\]](#).
45. MJ Kim, MJ Kim, JC Bird, J Park, TR Powers, and KS Breuer. (2004). Particle image velocimetry experiments on a macro-scale model for bacterial flagellar bundling. *Exp Fluids*, **37** (6) pp. 782--788. [\[doi\]](#).
46. JW Bae, KS Breuer, and CS Tan. (2005). Active control of tip clearance flow in axial compressors. *J Turbomach.*, **127** (2) pp. 352--362. [\[doi\]](#).
47. L Frechette, S Jacobson, K Breuer, F Ehrich, R Ghodssi, R Khanna, C Wong, X Zhang, M Schmidt, and A Epstein. (2005). High-speed microfabricated silicon turbomachinery and fluid film bearings. *J Microelectromechanical Syst.*, **14** (1) pp. 141--152. [\[doi\]](#).
48. P Kwok, M Weinberg, and K Breuer. (2005). Fluid effects in vibrating micromachined structures. *J Microelectromechanical Syst.*, **14** (4) pp. 770--781. [\[doi\]](#).
49. PY Kwok, MS Weinberg, and KS Breuer. (2005). Fluid effects in vibrating micromachined structures. *J. Microelectromechanical Syst.*, **14** (4) pp. 770--781. [\[doi\]](#).
50. JS Guasto, P Huang, and KS Breuer. (2006). Statistical particle tracking velocimetry using molecular and quantum dot tracer particles. *Exp. Fluids*, **41** (6) pp. 869--880.
51. P Huang, JS Guasto, and KS Breuer. (2006). Direct measurement of slip velocities using three-dimensional total internal reflection velocimetry. *J. Fluid Mech.*, **566** pp. 447. [\[doi\]](#).
52. X Tian, J Iriarte Diaz, K Middleton, R Galvao, E Israeli, A Roemer, A Sullivan, A Song, S Swartz, and K Breuer. (2006). Direct measurements of the kinematics and dynamics of bat flight. *Bioinspir. Biomim.*, **1** (4) pp. S10-S18. [\[doi\]](#).
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. [\[doi\]](#).
54. P Huang and KS Breuer. (2007). Direct measurement of anisotropic near-wall hindered diffusion using total internal reflection velocimetry. *Phys. Rev. E*, **76** (4) pp. 046307. [\[doi\]](#).
55. P Huang and KS Breuer. (2007). Direct measurement of slip length in electrolyte solutions. *Physics of Fluids*, **19** (2) pp. 028104. [\[doi\]](#).
56. RC Henry, RJ Hansman, and KS Breuer. (2007). Heat transfer variation on protuberances and surface roughness elements. *J. Thermophys. Heat Transf.*, **9** (1) pp. 175--180. [\[doi\]](#).
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. [\[doi\]](#).
58. MJ Kim and KS Breuer. (2007). Controlled Mixing in Microfluidic Systems Using Bacterial Chemotaxis. *Anal. Chem.*, **79** (3) pp. 955--959. [\[doi\]](#).
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. [\[doi\]](#).

60. JS Guasto and KS Breuer. (2008). Simultaneous, ensemble-averaged measurement of near-wall temperature and velocity in steady micro-flows using single quantum dot tracking. *Exp Fluids*, **45** (1) pp. 157--166. [\[doi\]](#).
61. T Hubel, K Breuer, A Song, and S Swartz. (2008). Wing motion and wake structure of bat flight. *Comp. Biochem. Physiol. Part A*, **3** (150) pp. S77.
62. MJ Kim and KS Breuer. (2008). Microfluidic Pump Powered by Self-Organizing Bacteria. *Small*, **4** (1) pp. 111--118. [\[doi\]](#).
63. B Qian, TR Powers, and KS Breuer. (2008). Shape Transition and Propulsive Force of an Elastic Rod Rotating in a Viscous Fluid. *Phys. Rev. Lett.*, **100** (7) pp. 078101. [\[doi\]](#).
64. D Riskin, J Iriarte Diaz, K Middleton, K Breuer, and S Swartz. (2008). Effects of body size on the wing kinematics of bats. *Comp. Biochem. Physiol. A. Mol. Integr. Physiol.*, **150** (3) pp. S78.
65. DK Riskin, DJ Willis, J Iriarte Diaz, TL Hedrick, M Kostandov, J Chen, DH Laidlaw, KS Breuer, and SM Swartz. (2008). Quantifying the complexity of bat wing kinematics. *Journal of Theoretical Biology*, **254** (3) pp. 604--615. [\[doi\]](#).
66. BJ Schmidt, P Huang, KS Breuer, and MB Lawrence. (2008). Catch strip assay for the relative assessment of two-dimensional protein association kinetics. *Anal. Chem.*, **80** (4) pp. 944--950. [\[doi\]](#).
67. A Song, X Tian, E Israeli, R Galvao, K Bishop, S Swartz, and K Breuer. (2008). Aeromechanics of Membrane Wings with Implications for Animal Flight. *AIAA Journal*, **46** (8) pp. 2096--2106. [\[doi\]](#).
68. JS Guasto and KS Breuer. (2009). High-speed quantum dot tracking and velocimetry using evanescent wave illumination. *Exp Fluids*, **47** (6) pp. 1059--1066. [\[doi\]](#).
69. P Huang, JS Guasto, and KS Breuer. (2009). The effects of hindered mobility and depletion of particles in near-wall shear flows and the implications for nanovelocimetry. *J. Fluid Mech.*, **637** pp. 241--265. [\[doi\]](#).
70. TY Hubel, NI Hristov, SM Swartz, and KS Breuer. (2009). Time-resolved wake structure and kinematics of bat flight. *Exp Fluids*, **46** (5) pp. 933--943. [\[doi\]](#).
71. B Qian, H Jiang, DA Gagnon, KS Breuer, and TR Powers. (2009). Minimal model for synchronization induced by hydrodynamic interactions. *Phys. Rev. E*, **80** (6) pp. 061919. [\[doi\]](#).
72. B Qian, M Loureiro, DA Gagnon, A Tripathi, and KS Breuer. (2009). Micron-Scale Droplet Deposition on a Hydrophobic Surface Using a Retreating Syringe. *Phys. Rev. Lett.*, **102** (16) pp. 164502. [\[doi\]](#).
73. TY Hubel, DK Riskin, SM Swartz, and KS Breuer. (2010). Wake structure and wing kinematics: The flight of the lesser dog-faced fruit bat, *Journal of Experimental Biology*, **213** (20) pp. 3427--3440. [\[doi\]](#).
74. M Molki and K Breuer. (2010). Oscillatory motions of a prestrained compliant membrane caused by fluid-membrane interaction. *Journal of Fluids and Structures*, **26** (3) pp. 339--358. [\[doi\]](#).
75. DK Riskin, J Iriarte Diaz, KM Middleton, KS Breuer, and SM Swartz. (2010). The effect of body size on the wing movements of pteropodid bats, with insights into thrust and lift production. *Journal of Experimental Biology*, **213** (23) pp. 4110--4122. [\[doi\]](#).
76. R Albertani, T Hubel, S Swartz, K Breuer, and J Evers. (2011). In-flight wing-membrane strain measurements on bats. *Expt Appl Mech*, **6** pp. 437--445.

77. J Iriarte Diaz, DK Riskin, DJ Willis, KS Breuer, and SM Swartz. (2011). Whole-body kinematics of a fruit bat reveal the influence of wing inertia on body accelerations. *Journal of Experimental Biology*, **214** (9) pp. 1546--1553. [\[doi\]](#).
78. B Liu, TR Powers, and KS Breuer. (2011). Force-free swimming of a model helical flagellum in viscoelastic fluids. *Proceedings of the National Academy of Sciences*, **108** (49) pp. 19516--19520. [\[doi\]](#).
79. LC MacAyeal, DK Riskin, SM Swartz, and KS Breuer. (2011). Climbing flight performance and load carrying in lesser dog-faced fruit bats *Cynopterus brachyotis* *Journal of Experimental Biology*, **214** (5) pp. 786--793. [\[doi\]](#).
80. B Qian and KS Breuer. (2011). The motion, stability and breakup of a stretching liquid bridge with a receding contact line. *J. Fluid Mech.*, **666** pp. 554--572. [\[doi\]](#).
81. D Willis, J Bahlman, K Breuer, and S Swartz. (2011). Energetically optimal short-range gliding trajectories for gliding animals. *AIAA J.*, **49** (12) pp. 2650--2657. [\[doi\]](#).
82. J Colorado, A Barrientos, C Rossi, and KS Breuer. (2012). Biomechanics of smart wings in a bat robot: Morphing wings using SMA actuators. *Bioinspir. Biomim.*, **7** (3) pp. 036006. [\[doi\]](#).
83. TY Hubel, NI Hristov, SM Swartz, and KS Breuer. (2012). Changes in kinematics and aerodynamics over a range of speeds in *Tadarida brasiliensis*, the Brazilian free-tailed bat. *J. R. Soc. Interface.*, **9** (71) pp. 1120--1130. [\[doi\]](#).
84. J Iriarte Diaz, DK Riskin, KS Breuer, and SM Swartz. (2012). Kinematic Plasticity during Flight in Fruit Bats: Individual Variability in Response to Loading. *PLoS ONE*, **7** (5) pp. e36665. [\[doi\]](#).
85. DK Riskin, A Bergou, KS Breuer, and SM Swartz. (2012). Upstroke wing flexion and the inertial cost of bat flight. *Proc. R. Soc. B.*, **279** (1740) pp. 2945--2950. [\[doi\]](#).
86. SM Swartz, J Iriarte Diaz, DK Riskin, and KS Breuer. (2012). A bird? A plane? No, it's a bat: An introduction to the biomechanics of bat flight. *Evol. Hist. Bats Foss. Mol. Morphol.*, pages 317--352. [\[doi\]](#).
87. RM Waldman and KS Breuer. (2012). Accurate measurement of streamwise vortices using dual-plane PIV. *Exp Fluids*, **53** (5) pp. 1487--1500. [\[doi\]](#).
88. TS Yu, J Park, H Lim, and KS Breuer. (2012). Fog Deposition and Accumulation on Smooth and Textured Hydrophobic Surfaces. *Langmuir*, **28** (35) pp. 12771--12778. [\[doi\]](#).
89. JW Bahlman, SM Swartz, and KS Breuer. (2013). Design and characterization of a multi-articulated robotic bat wing. *Bioinspir. Biomim.*, **8** (1) pp. 016009. [\[doi\]](#).
90. JW Bahlman, SM Swartz, DK Riskin, and KS Breuer. (2013). Glide performance and aerodynamics of non-equilibrium glides in northern flying squirrels (*Glaucomys sabrinus*). *J. R. Soc. Interface.*, **10** (80) pp. 20120794. [\[doi\]](#).
91. OM Curet, SM Swartz, and KS Breuer. (2013). An aeroelastic instability provides a possible basis for the transition from gliding to flapping flight. *J. R. Soc. Interface.*, **10** (80) pp. 20120940. [\[doi\]](#).
92. M Dasgupta, B Liu, HC Fu, M Berhanu, KS Breuer, TR Powers, and A Kudrolli. (2013). Speed of a swimming sheet in Newtonian and viscoelastic fluids. *Phys. Rev. E*, **87** (1) pp. 013015. [\[doi\]](#).
93. B Liu, KS Breuer, and TR Powers. (2013). Helical swimming in Stokes flow using a novel boundary-element method. *Physics of Fluids*, **25** (6) pp. 061902. [\[doi\]](#).

94. JW Bahlman, SM Swartz, and KS Breuer. (2014). How wing kinematics affect power requirements and aerodynamic force production in a robotic bat wing. *Bioinspir. Biomim.*, **9** (2) pp. 025008. [\[doi\]](#).
95. OM Curet, A Carrere, R Waldman, and KS Breuer. (2014). Aerodynamic Characterization of a Wing Membrane with Variable Compliance. *AIAA Journal*, **52** (8) pp. 1749--1756. [\[doi\]](#).
96. JA Cheney, N Konow, KM Middleton, KS Breuer, TJ Roberts, EL Giblin, and SM Swartz. (2014). Membrane muscle function in the compliant wings of bats. *Bioinspir. Biomim.*, **9** (2) pp. 025007. [\[doi\]](#).
97. JA Cheney, D Ton, N Konow, DK Riskin, KS Breuer, and SM Swartz. (2014). Hindlimb Motion during Steady Flight of the Lesser Dog-Faced Fruit Bat, *Cynopterus brachyotis*. *PLoS ONE*, **9** (5) pp. e98093. [\[doi\]](#).
98. B Liu, KS Breuer, and TR Powers. (2014). Propulsion by a helical flagellum in a capillary tube. *Physics of Fluids*, **26** (1) pp. 011701. [\[doi\]](#).
99. B Liu, M Gulino, M Morse, JX Tang, TR Powers, and KS Breuer. (2014). Helical motion of the cell body enhances *Caulobacter crescentus* motility. *Proceedings of the National Academy of Sciences*, **111** (31) pp. 11252--11256. [\[doi\]](#).
100. R von Busse, RM Waldman, SM Swartz, CC Voigt, and KS Breuer. (2014). The aerodynamic cost of flight in the short-tailed fruit bat (*Carollia perspicillata*): Comparing theory with measurement. *J. R. Soc. Interface.*, **11** (95) pp. 20140147. [\[doi\]](#).
101. AJ Bergou, SM Swartz, H Vejdani, DK Riskin, L Reimnitz, G Taubin, and KS Breuer. (2015). Falling with Style: Bats Perform Complex Aerial Rotations by Adjusting Wing Inertia. *PLoS Biol*, **13** (11) pp. e1002297. [\[doi\]](#).
102. K Onoue, A Song, B Strom, and KS Breuer. (2015). Large amplitude flow-induced oscillations and energy harvesting using a cyber-physical pitching plate. *Journal of Fluids and Structures*, **55** pp. 262--275. [\[doi\]](#).
103. B Qian, J Park, and KS Breuer. (2015). Large apparent slip at a moving contact line. *Phys. Fluids*, **27** (9) pp. 091703. [\[doi\]](#).
104. JW Bahlman, RM Price Waldman, HW Lippe, KS Breuer, and SM Swartz. (2016). Simplifying a wing: Diversity and functional consequences of digital joint reduction in bat wings. *J. Anat.*, **229** (1) pp. 114--127. [\[doi\]](#).
105. TY Hubel, NI Hristov, SM Swartz, and KS Breuer. (2016). Wake structure and kinematics in two insectivorous bats. *Phil. Trans. R. Soc. B*, **371** (1704) pp. 20150385. [\[doi\]](#).
106. J Kiser, M Manning, D Adler, and K Breuer. (2016). A reduced order model for dielectric elastomer actuators over a range of frequencies and prestrains. *Appl. Phys. Lett.*, **109** (13) pp. 133506. [\[doi\]](#).
107. K Onoue and KS Breuer. (2016). Vortex formation and shedding from a cyber-physical pitching plate. *J. Fluid Mech.*, **793** pp. 229--247. [\[doi\]](#).
108. JA Franck and KS Breuer. (2017). Unsteady high-lift mechanisms from heaving flat plate simulations. *International Journal of Heat and Fluid Flow*, **67** pp. 230--239. [\[doi\]](#).
109. N Konow, JA Cheney, TJ Roberts, J Iriarte Diaz, KS Breuer, JRS Waldman, and SM Swartz. (2017). Speed-dependent modulation of wing muscle recruitment intensity and kinematics in two bat species. *J Exp Biol*, **220** (10) pp. 1820--1829. [\[doi\]](#).
110. D Kim, B Strom, S Mandre, and K Breuer. (2017). Energy harvesting performance and flow structure of an oscillating hydrofoil with finite span. *Journal of Fluids and Structures*, **70** pp. 314--326. [\[doi\]](#).

111. K Onoue and KS Breuer. (2017). A scaling for vortex formation on swept and unswept pitching wings. *J. Fluid Mech.*, **832** pp. 697--720. [\[doi\]](#).
112. C Schunk, SM Swartz, and KS Breuer. (2017). The influence of aspect ratio and stroke pattern on force generation of a bat-inspired membrane wing. *Interface Focus.*, **7** (1) pp. 20160083. [\[doi\]](#).
113. RM Waldman and KS Breuer. (2017). Camber and aerodynamic performance of compliant membrane wings. *Journal of Fluids and Structures*, **68** pp. 390--402. [\[doi\]](#).
114. Z Qu, FZ Temel, R Henderikx, and KS Breuer. (2018). Changes in the flagellar bundling time account for variations in swimming behavior of flagellated bacteria in viscous media. *Proc Natl Acad Sci USA*, **115** (8) pp. 1707--1712. [\[doi\]](#).
115. HR Vejdani, DB Boerma, SM Swartz, and KS Breuer. (2018). The dynamics of hovering flight in hummingbirds, insects and bats with implications for aerial robotics. *Bioinspir. Biomim.*, **14** (1) pp. 016003. [\[doi\]](#).
116. G Alon Tzezana and KS Breuer. (2019). Thrust, drag and wake structure in flapping compliant membrane wings. *J. Fluid Mech.*, **862** pp. 871--888. [\[doi\]](#).
117. JR Bohnker and KS Breuer. (2019). Control of separated flow using actuated compliant membrane wings. *AIAA J.*, **57** (9) pp. 3801--3811. [\[doi\]](#).
118. DB Boerma, KS Breuer, TL Treskatis, and SM Swartz. (2019). Wings as inertial appendages: How bats recover from aerial stumbles. *J Exp Biol*, **222** (20) pp. jeb204255. [\[doi\]](#).
119. K Breuer. (2019). Flight of the RoboBee. *Nature*, **570** (7762) pp. 448--449. [\[doi\]](#).
120. Y Su and K Breuer. (2019). Resonant response and optimal energy harvesting of an elastically mounted pitching and heaving hydrofoil. *Phys. Rev. Fluids*, **4** (6) pp. 064701. [\[doi\]](#).
121. Y Su, M Miller, S Mandre, and K Breuer. (2019). Confinement effects on energy harvesting by a heaving and pitching hydrofoil. *Journal of Fluids and Structures*, **84** pp. 233--242. [\[doi\]](#).
122. K Sum Wu, J Nowak, and KS Breuer. (2019). Scaling of the performance of insect-inspired passive-pitching flapping wings. *J. R. Soc. Interface.*, **16** (161) pp. 20190609. [\[doi\]](#).
123. J Bohnker and K Breuer. (2020). Optimization of the recursive least squares algorithm for capacitive strain sensing. *Eng. Res. Express*, **2** (4) pp. 046001. [\[doi\]](#).
124. A Das, KS Breuer, and V Mathai. (2020). Nonlinear modeling and characterization of ultrasoft silicone elastomers. *Appl. Phys. Lett.*, **116** (20) pp. 203702. [\[doi\]](#).
125. M Di Luca, S Mintchev, Y Su, E Shaw, and K Breuer. (2020). A bioinspired Separated Flow wing provides turbulence resilience and aerodynamic efficiency for miniature drones. *Sci. Robot.*, **5** (38) pp. eaay8533. [\[doi\]](#).
126. Z Qu and KS Breuer. (2020). Effects of shear-thinning viscosity and viscoelastic stresses on flagellated bacteria motility. *Phys. Rev. Fluids*, **5** (7) pp. 073103. [\[doi\]](#).
127. Z Qu, X Yi, and KS Breuer. (2020). Measuring the viscoelastic behavior of dilute polymer solutions using high-speed statistical particle microrheology. *ArXiv Prepr. ArXiv200410930*.
128. Y Zhu, Y Su, and K Breuer. (2020). Nonlinear flow-induced instability of an elastically mounted pitching wing. *J. Fluid Mech.*, **899** pp. A35. [\[doi\]](#).
129. M Di Luca and K Breuer. (2021). Wall Distance Effects on Transition to Turbulence in Low-Reynolds-Number Separated Flows. *AIAA Journal*, pages 1--9. [\[doi\]](#).

130. X Fan and K Breuer. (2021). Low-order modeling of flapping flight with highly articulated, cambered, heavy wings. *AIAA J.*, **0** (0) pp. 1--10. [\[doi\]](#).
131. Y Fan, KT Wu, SA Aghvami, S Fraden, and KS Breuer. (2021). Effects of confinement on the dynamics and correlation scales in kinesin-microtubule active fluids. *Phys. Rev. E*, **104** (3) pp. 034601. [\[doi\]](#).
132. V Mathai, A Das, JA Bailey, and K Breuer. (2021). Airflows inside passenger cars and implications for airborne disease transmission. *Sci.Adv.*, **7** (1). [\[doi\]](#).
133. BLR Ribeiro, Y Su, Q Guillaumin, KS Breuer, and JA Franck. (2021). Wake-foil interactions and energy harvesting efficiency in tandem oscillating foils. *Phys. Rev. Fluids*, **6** (7) pp. 074703. [\[doi\]](#).
134. Y Zhu, V Mathai, and K Breuer. (2021). Nonlinear fluid damping of elastically mounted pitching wings in quiescent water. *J. Fluid Mech.*, **923** pp. R2. [\[doi\]](#).
135. Mathai, V., Das, A. and Breuer, K. (2022) 'Aerosol transmission in passenger car cabins: Effects of ventilation configuration and driving speed', *Physics of Fluids*, 34(2), p. 021904. Available at: <https://doi.org/10.1063/5.0079555>.
136. Cheney, J.A., Rehm, J.C., Swartz, S.M. and Breuer, K.S. (2022) 'Bats actively modulate membrane compliance to control camber and reduce drag', *Journal of Experimental Biology*, 225(14), p. jeb243974. Available at: <https://doi.org/10.1242/jeb.243974>.
137. Di Luca, M., Breuer, K. and Mintchev, S. (2022) 'Cavities Improve the Power Factor of Low-Reynolds-Number Airfoils and Wings', *AIAA Journal*, 60(3), pp. 1679–1690. Available at: <https://doi.org/10.2514/1.j060711>.
138. Breuer, K., Drela, M., Fan, X. and Di Luca, M. (2022) 'Design and performance of an ultra-compact, low-speed, low turbulence level, wind tunnel for aerodynamic and animal flight experiments', *Experiments in Fluids*, 63(11), p. 169. Available at: <https://doi.org/10.1007/s00348-022-03519-1>.
139. Mathai, V., Tzezana, G.A., Das, A. and Breuer, K.S. (2022) 'Fluid-structure interactions of energy-harvesting membrane hydrofoils', *Journal of Fluid Mechanics*, 942, p. R4. Available at: <https://doi.org/10.1017/jfm.2022.322>.
140. Lee, H., Simone, N., Su, Y., Zhu, Y., Ribeiro, B.L.R., Franck, J.A. and Breuer, K. (2022) 'Leading edge vortex formation and wake trajectory: Synthesizing measurements, analysis, and machine learning', *Physical Review Fluids*, 7(7), p. 074704. Available at: <https://doi.org/10.1103/PhysRevFluids.7.074704>.
141. Fan, X. and Breuer, K. (2022) 'Low-Order Modeling of Flapping Flight with Highly Articulated, Cambered, Heavy Wings', *AIAA Journal*, 60(2), pp. 892–901. Available at: <https://doi.org/10.2514/1.j060661>.
142. Qu, Z., Yi, X. and Breuer, K.S. (2022) 'Measuring the viscoelastic behavior of dilute polymer solutions using high-speed statistical particle microrheology', *Flow Measurement and Instrumentation*, p. 102270. Available at: <https://doi.org/10.1016/j.flowmeasinst.2022.102270>.
143. Fan, X., Swartz, S. and Breuer, K. (2022) 'Power requirements for bat-inspired flapping flight with heavy, highly articulated and cambered wings', *Journal of The Royal Society Interface*, 19, p. 20220315. Available at: <https://doi.org/10.1098/rsif.2022.0315>.
144. Zhu, Y., Lee, H., Kumar, S., Menon, K., Mittal, R. and Breuer, K. (2023) 'Force moment partitioning and scaling analysis of vortices shed by a 2D pitching wing in quiescent fluid', *Experiments in Fluids*, 64(10), p. 158. Available at: <https://doi.org/10.1007/s00348-023-03698-5>.

145. Bohnker, J. and Breuer, K. (2023) 'Integrated Sensing of Camber, Aerodynamic Load, and Vortex Structures over Membrane Wings', *AIAA Journal*, 61(11), pp. 5032–5041. Available at: <https://doi.org/10.2514/1.J062578>.
146. Mathai, V., Das, A., Naylor, D.L. and Breuer, K.S. (2023) 'Shape-Morphing Dynamics of Soft Compliant Membranes for Drag and Turbulence Modulation', *Physical Review Letters*, 131(11), p. 114003. Available at: <https://doi.org/10.1103/PhysRevLett.131.114003>.
147. Mittal, R., Breuer, K. and Seo, J.H. (2023) 'The flow physics of face masks', *Annual Review of Fluid Mechanics*, 55(1), pp. 193–211. Available at: <https://doi.org/10.1146/annurev-fluid-120720-035029>.

Papers in refereed conference proceedings

1. Landahl, M.T. & Breuer, K.S. "Transients and waves in boundary layer transition." In *Nonlinear Wave Interactions in Fluids*. Ed. Miksad et. al. ASME Winter Annual Meeting, Boston MA, AMD-87 pp. 17-22. 1987.
2. Gresko, L., Haritonidis, J.H. & Breuer, K.S. "Pressure and velocity waves in the near wall region." In *Proceedings of the Zoran Zaric Memorial International Seminar on Near Wall Turbulence*. Ed. S.J. Kline, Hemisphere Press. 1988.
3. Breuer, K.S. "The evolution of a localized disturbance in a laminar boundary layer." In *Laminar Turbulent Transition*. Eds. Arnal, D. & Michel, R. Springer-Verlag. 1989.
4. Cohen, J. & Breuer, K.S. "On the subharmonic resonance in a wavepacket." In *Advances in Turbulence, 3*. Eds. A.V. Johansson & P.H. Alfredsson. Springer-Verlag. pp. 141-151. 1990.
5. Breuer, K.S. & Haritonidis, J.H. "The structure and splitting of the turbulent puff in transitional pipe flow." In *Advances in Turbulence, 3*. Eds. A.V. Johansson & P.H. Alfredsson. Springer-Verlag. 1990.
6. Breuer, K.S., Cohen, J. & Haritonidis, J.H. "The late stages of transition for a wave packet in a laminar boundary layer." In *Proceedings of the ASME/JSME Symposium of Boundary layer stability and transition*. Portland, OR. July 1991.
7. Hansman, J.H., Breuer, K.S., Hazan, D., Reehorst, A. & Vargas, M. "Closeup analysis of Aircraft Ice Accretion." AIAA Paper 93-0029. Reno, NV. Jan. 1993.
8. Arkilic, E.B. & Breuer, K.S. "Gaseous flow in small channels." AIAA Paper 93-3270. Orlando, FL. July 1993.
9. Breuer, K.S. & Kuraishi, T. "Transient growth in two- and three-dimensional boundary layers." AIAA Paper 93-3050. Orlando, FL. July 1993.
10. Breuer, K.S. "Active control of wall-pressure fluctuations in a turbulent boundary layer." *Symposium on flow noise modeling and control*. ASME-FED 168. ASME Winter Annual Meeting, New Orleans, LA. November, 1993
11. Henry, R., Hansman, R.J. & Breuer, K.S. "Measurement of heat transfer variations on surface roughness elements using infrared techniques." AIAA Paper 94-0801, Reno, NV. Jan. 1994.
12. Goldberg, H., Breuer, K.S. & Schmidt, M.A. "A silicon wafer-bonding technology for microfabricated shear-stress sensors with backside contacts." In *Proceedings of the Solid-State Sensor and Actuator Workshop*. pp. 111-114. Hilton Head, SC. June 1994.
13. Arkilic, E.B., Schmidt, M.A. & Breuer, K.S. "Gaseous flow in microchannels." In *Proceedings of the Symposium on Rarefied Gas Dynamics*, Oxford UK, July 1994. (Also, in slightly

- different form, Proceedings of the ASME Symposium on Applications of Micromachining to Fluid Mechanics. Chicago, IL. November 1994.)
14. Goldberg, H., Piepsz, O., Breuer, K.S. & Schmidt, M.A. "A silicon microfabricated hot-wire anemometer utilizing a backside contact technology." In Proceedings of the ASME Symposium on Applications of Micromachining to Fluid Mechanics. Chicago, IL. November 1994.
 15. Orr, D.J., Breuer, K.S. & Hansman, R.J. "Quantitative analysis of ice accretion roughness using spectral and stochastic techniques." AIAA Paper 93-0888. Reno, NV. Jan 1995.
 16. Padmanabhan, A, Goldberg, H. D, Breuer, K.S. & Schmidt, M. A. "A silicon microfabricated floating-element shear-stress sensor with optical position sensing by photodiodes." In Proceedings of Transducers, '95. Stockholm, Sweden, June 1995.
 17. Breuer, K.S., Piekos, E.S. & Gonzales, D. "DSMC simulations of continuum flows." AIAA Paper 95-2088. San Diego, CA. June 1995.
 18. Piekos, E.S. & Breuer, K.S. "DSMC modeling of micromechanical devices." AIAA Paper 95-2089. San Diego, CA. June 1995.
 19. Breuer, K.S., Grimaldi, M. E., Ullmar, M. & Gunnarsson, J. "Linear and nonlinear evolution of boundary layer instabilities generated by acoustic receptivity mechanisms." AIAA Paper 96-0183. Reno, NV. Jan 1996.
 20. Rathnasingham, R. & Breuer, K.S. "Characteristics of resonant actuators for flow control." AIAA Paper 96-0311. Reno, NV. Jan 1996.
 21. Padmanabhan, A., Goldberg, H.D., Schmidt, M.A. & Breuer, K.S. . "A silicon micromachined sensor for shear stress measurements in aerodynamic flows." AIAA Paper 96-0422. Reno, NV. Jan 1996.
 22. Orr, D.J. Torres, B., Breuer, K.S. & Hansman, R.J. "Spectral analysis and experimental simulation of ice accretion roughness." AIAA Paper 96-0865. Reno, NV. Jan 1996.
 23. Arkilic, E.B, Schmidt, M.A. & Breuer, K.S. "Measurement of the TMAC in Silicon Microchannels." In Proceedings of the Symposium on Rarefied Gas Dynamics, Beijing, China UK, August 1996.
 24. Breuer, K.S., Torres, B., Orr, D.J. & Hansman, R.J. "Heat Transfer Measurements on Surfaces with Natural Ice Castings and Modeled Roughness." AIAA Paper 97-1018. Reno, NV. Jan 1997.
 25. Piekos, E.S., Orr, D.J., Jacobson, S.A., Ehrich, F.F. & Breuer, K.S. "Design and Analysis of Microfabricated High Speed Gas Journal Bearings." AIAA Paper 97-1966, Snowmass, CO. June 1997.
 26. Rathnasingham, R. & Breuer, K.S. "System Identification and control of turbulent flows." AIAA Paper 97-1793, Snowmass, CO. June 1997.
 27. Lorkowski, T., Rathnasingham, R. & Breuer, K.S. "Small Scale forcing of a turbulent boundary layer." AIAA Paper 97-1792, Snowmass, CO. June 1997.
 28. Epstein, A.H., Senturia, S.D, Al-Midani, O, Anathasuresh, G, Ayon, A., Breuer, K., Chen, K-S, Ehrich, F.E., Esteve, E., Frechette, L., Gauba, G., Ghodssi, R., Groshenry, C., Jacobson, S., Kerrebrock, J.L., Lang, J.H., Lin, C-C., London, A., Lopata, J., Mehra, A., Mur Miranda, J.O., Nagle, S., Orr, D.J, Piekos, E., Schmidt, M.A., Shirley, G., Spearing, S.M., Tan, C.S., Tzeng, Y-S and Waitz, I.A. "Micro-Heat Engines, Gas Turbines and Rocket Engines - the MIT Microengine Project". AIAA Paper 97-1773. Snowmass, CO. June 1997.

29. Padmanabhan, A., Sheplak, M., Breuer, K.S., & Schmidt, M.A. "Micromachined sensors for static and dynamic shear-stress measurements in aerodynamic flows." Proceedings of the IEEE Transducers '97 Conference, Chicago, IL, June 1997.
30. Epstein, A.H., Senturia, S.D., Anathasuresh, G., Ayon, A., Breuer, K., Chen, K-S., Ehrich, F.E., Gauba, G., Ghodssi, R., Groshenry, C., Jacobson, S., Lang, J.H., Lin C-C., Mehra, A., Miranda, J.M., Nagle, S., Orr, D.J., Piekos, E., Schmidt, M.A., Shirley, G., Spearing M.S., Tan, C.S., Tzeng, Y-S., Waitz, I.A. "Power MEMS and Microengines." Proceedings of the IEEE Transducers '97 Conference, Chicago, IL, June 1997.
31. Miller, M, Allen, M. A, Breuer, K. S. Schmidt, M. A, Arkilic, E. "A Microfabricated Fabry-Perot Pressure Sensor". Proceedings of the IEEE Transducers '97 Conference, Chicago, IL, June 1997.
32. Bayt, R. L. & Breuer, K. S. "MEMS-based space propulsion". AIAA Paper 97-3169 Seattle, WA. July 1997.
33. Breuer, K.S., Amonlirdviman, K. & Rathnasingham, R. "Adaptive Feedfoward control of turbulent boundary layers". AIAA Paper 98-1025. Reno, NV. January 1998.
34. Sheplak, K., Padmanabhan, A., Schmidt, M. A. & Breuer, K.S. "Dynamic calibration of a shear stress sensor using Stokes layer excitation". AIAA Paper 98-0585. Reno, NV. January 1998.
35. Sheplak, M., Breuer, K.S., & Schmidt, M.A. "A wafer-bonded, silicon-nitride membrane microphone with dielectrically-isolated, single-crystal silicon piezoresistors." Proceedings of the Solid-State Sensor and Actuator Workshop, Hilton Head, SC, June 1998.
36. Bayt, R., Breuer, K.S., & Ayon, A.A. "DRIE-Fabricated nozzles for generating supersonic flows in micropropulsion systems." Proceedings of the Solid-State Sensor and Actuator Workshop, Hilton Head, SC, June 1998.
37. Breuer, K.S., Rathnasingham, R., & Amonlirdviman, K. "Adaptive feed-forward control of turbulent boundary layers." Proc. of the International Symposium on Seawater Drag Reduction, Newport, RI, July 1998.
38. Piekos, E.S. & Breuer, K.S. "Pseudo-Spectral orbit simulation of non-ideal gas-lubricated journal bearings for microfabricated turbomachines." ASME/STLE Conference. Toronto Canada. October 1998. (also published in J. Tribology).
39. Bayt, R., & Breuer, K.S. "Viscous effects in supersonic MEMS-Fabricated micronozzles." Proceedings of the 3rd ASME Microfluids Symposium, Anaheim, CA, Nov. 1998.
40. Lin, C.C, Ghodssi, R, Ayon, A.A., Chen, D-Z, Jacobson, S, Breuer, K.S, Epstein, A.H. & Schmidt M.A. "Fabrication and characterization of micro turbine/bearing rig". Proceedings, MEMS99. January 1999.
41. Sheplak, M., Seiner, J.M., Breuer, K.S., & Schmidt, M.A. "A MEMS microphone for aeroacoustics measurements" AIAA Paper 99-0606, Reno, NV, January 1999.
42. Breuer, K.S. and Bayt, R.A. "Micromachined Thrusters for Microspacecraft". Proceedings of the Conference of Micro- and Nano-Technology for Space Applications, Pasadena, CA. April 1999.
43. King, R.A., and Breuer, K.S. "Non-localized Acoustic Receptivity and Subsequent Disturbance Growth in a Blasius Boundary Layer". In Laminar-Turbulent Transition. Eds. W. Saric & H. Fasel. Springer, 1999.

44. Hagood, N., Roberts, D., Breuer, K., Chen, K-S, Carretero, J., Ganji, F., Li, H., Mlcak, R., Pulitzer, S., Saggere, L., Schmidt, M., Spearing, M., & Su, Y-S. "Micro Hydraulic Transducer Technology For Actuation and Power Generation". SPIE. 1999.
45. Hagood, N., Roberts, D., Breuer, K., Chen, K-S, Carretero, J., Ganji, F., Li, H., Mlcak, R., Pulitzer, S., Saggere, L., Schmidt, M., Spearing, M., & Su, Y-S. "Development of Micro-Hydraulic Transducer Technology," 10th International Conference on Adaptive Structures and Technologies, Paris, France, October 11-13, 1999.
46. Breuer, K.S., Bayt, R. A and Nayaar, A. "Measurement of Shear Stress and Temperature Using MEMS Fabricated Sensors". Proceedings of the 4th ASME Microfluids Symposium, Nashville TN. Nov 1999.
47. Miller, M, Allen, M. G, Bayt, R.L. & Breuer, K. S. "Design and Testing of Micromachined Fabry-Perot Pressure Sensors for Aerodynamic Applications". AIAA Paper 2000-0253. Aerospace Sciences Meeting, Reno, NV Jan 2000.
48. H.Q. Li, D.C. Roberts, J.L. Steyn, K.T. Turner, J. A. Carretero, O. Yaglioglu, Y.-H. Su, L. Saggere, N.W. Hagood, S.M. Spearing, and M.A. Schmidt, R. Mlcak & K Breuer. "A High Frequency High flow rate piezoelectrically driven MEMS Micropump". IEEE Solid State Sensors and Actuators Workshop. Hilton Head SC. June 2000.
49. Luc G. Fr chet, Stuart A. Jacobson, Kenneth S. Breuer, Fredric F. Ehrich, Reza Ghodssi, Ravi Khanna, Chee Wei Wong, Xin Zhang, Martin A. Schmidt & Alan H. Epstein "Demonstration of a Microfabricated High-Speed Turbine Supported on Gas Bearings". IEEE Solid State Sensors and Actuators Workshop. Hilton Head SC. June 2000.
50. Bayt, R.L.& Breuer, K.S. "A silicon heat heat-exchanger with an integrated intrinsic-point heater demonstrated in a micropropulsion application". IEEE Solid State Sensors and Actuators Workshop. Hilton Head SC. June 2000. (Also, to appear: Sensor & Actuators, 2001).
51. Lorber, P. McCormick, D., Anderson, T., Wake, B., MacMartin, D., Pollack, M. Corke, T. & Breuer, K. "Rotorcraft Retreating Blade Stall Control". AIAA Paper 2000-2475. Fluids 2000 Conference, Denver CO. June 2000.
52. Kang, E., Breuer, K.S. & Tan, C.S. "Control of Leakage Flows using Periodic Excitation". AIAA Paper 2000-2232. Fluids 2000 Conference, Denver CO. June 2000
53. Bae, J., Breuer, K.S. & Tan, C.S. "Control of Tip Clearance Flows in Axial Compressors." AIAA Paper 2000-2232. Fluids 2000 Conference, Denver CO. June 2000.
54. King, R.A. & Breuer, K.S. "Oblique Transition in a Blasius Boundary Layer". Proceedings of the IUTAM 2000 Conference. Chicago, IL. September 2000
55. Savoulides, N., Jacobson, S. Ehrich, F. & Breuer, K.S. "Low order Models for Hybrid Gas Bearings". ASME/ASLE Symposium. Seattle WA. Sept. 2000. (Also published in J. Tribology 2000).
56. Carretero, J. & Breuer, K.S. "Measurement and Modeling of the Flow Characteristics of Micro Disk Valves". Proceedings of the ASME Microfluidics Symposium. Orlando, FL. Nov. 2000.
57. Bayt, R.L. & Breuer, K.S. "Systems Design and Performance of Hot and Cold Supersonic Microjets". AIAA Paper 2001-0721. AIAA Aerospace Sciences Meeting, Reno NV. Jan 2001. (Invited).
58. Han, G. and Breuer, K.S. "Infrared PIV for measurement of fluid and solid motion inside opaque silicon microdevices". Proceedings, PIV01. G ttingen, Germany. September 2001.

59. Westin, J., Choi, C-H., & Breuer, K.S. "Rheological Shear Measurements in Micron Scale Geometries", Proceedings, MicroTAS 2001. Monterey, CA. October 2001.
60. Breuer, K.S., Bird, J.C., Han, G. & Westin, K.J.A. "Infrared Diagnostics for the measurement of fluid and solid motion in micromachined Devices". Proceedings, ASME IMECE, New York, NY. November 2001.
61. Westin, J, Choi, C-H, Huang, P. Cao, Z, Breuer, K.S., Caswell, B. Richardson, P. & Sibulkin, M. "Liquid Transport Properties in submicron channel flows". Proceedings, ASME IMECE, New York, NY. November 2001.
62. Breuer, K.S. Sensors, Actuators and Algorithms for Practical Implementations of Turbulent Boundary Layer Control. Proceedings of the Third Symposium on Smart Control of Turbulence. Tokyo, March 2002. (Invited)
63. Han, G, Bird, J.C., Westin, KJ & Breuer, K.S. "Infrared Diagnostics for the measurement of fluid and solid motion inside MEMS". Proceedings of the IEEE Workshop on Solid State Sensors and Actuators, Hilton Head, SC June 2002.
64. Park, J; Henoeh, C. & Breuer, K.S. Drag Reduction in Turbulent Flows using Lorentz Force Actuation. Proceedings, IUTAM Symposium on Scaling in Turbulent Flows. Princeton NJ. September 2002. Ed A. Smits. Kluwer Press 2003
65. Choi, C-H, Westin, K.J.A, and Breuer, K.S. To Slip or Not to Slip: Water Flows in Hydrophilic and Hydrophobic Microchannels Paper 2002-33707, Proceedings, ASME IMECE New Orleans LA. Nov, 2002
66. Jinwoo Bae Kenneth S. Breuer, Choon S. Tan. Active Control of Tip Clearance flow in Axial Compressors. ASME Gas Turbine Expo Paper 2003-39661. Atlanta GA. June, 2003.
67. Huang, P. and Breuer, K.S. Performance and scaling of an ElectroOsmotic Mixer. Proceedings of IEEE Transducers 03. Boston MA June 2003
68. Wu, K. E., & Breuer, K. S. "Dynamics of Synthetic Jet Actuator Arrays for Flow Control". AIAA Paper 2003-4257. Orlando, FL. June, 2003.
69. Breuer, K.S. and Rathnasingham, R. "Active control of turbulent boundary layers". AIAA Paper 2003-1233, Orlando, FL June 2003 (Invited).
70. Park, J., Henoeh, C., McCamley, M., & Breuer, K. S. "Lorentz Force Control of Turbulent Channel Flow". AIAA Paper 2003-4157. Orlando, FL. June, 2003.
71. Jin, S., Huang, P., Park, J., Yoo, J. Y., & Breuer, K. S. "Near-wall PTV measurements using evanescent wave illumination". Paper P3237. Proceedings of PIV03, Busan, Korea. September 2003.
72. Kim, M., Kim, M., Bird, J.C., Park, J., Powers, T.R., & Breuer, K.S. "Macro-scale PIV Experiments on Bacterial Flagellar Bundling". Paper P0085. Proceedings of PIV03, Busan, Korea. September 2003.
73. Kim. M., Breuer, K.S. "Enhanced diffusion due to swimming bacteria". Paper IMECE2003-44014. Proceedings of the ASME IMECE November 2003, Washington DC. November 2003.
74. Jin, S., Huang, P., Park, J., Yoo, J-Y., & Breuer, K.S. "Near-surface velocimetry using evanescent wave illumination". Paper IMECE2003-44015. Proceedings of the ASME IMECE November 2003, Washington DC. November 2003.
75. Jin, S., & Breuer, K.S. "Diffusion limited evaporation in long microchannels". Paper IMECE2003-44135. Proceedings of the ASME IMECE November 2003, Washington DC. November 2003.

76. Huang, P., & Breuer, K.S. "Direct measurement and simulation of apparent slip velocities in sub micron scale flows" Proceedings of ICTAM, Warsaw Poland. August 2004.
77. Homsy, G.M. & Breuer, K.S. "Multimedia fluid mechanics: A flexible educational tool for teaching and learning fluid mechanics". Proceedings of ICTAM, Warsaw, Poland. Aug. 2004.
78. Bishop, K. and Breuer, K. S. "Effect of shape on the aerodynamic forces generated by flexible wings". 7th International Congress of Vertebrate Morphology, Florida Atlantic University, Boca Raton, Florida, 27 Jul. - 01 Aug. 2004. (Abstract published in Journal of Morphology. 260(3):278.)
79. Swartz, S.M.; Middleton, K.M.; Iriate-Diaz, J.; Lee, M.; Wofford, J.M.; Breuer, K.S.; Ritter, D.A., Can bats actively control the mechanical properties of the wing membrane? . SICB Annual Meeting, San Diego CA January 2005. (Abstracts to be published in Integrative and Comparative Biology).
80. Huang, P., Guasto, J.S. & Breuer, K.S. "Direct Measurement of Slip Velocities Using Three-Dimensional Total Internal Reflection Velocimetry". Paper IMECE2005-79938. Proceedings of ASME IMECE. Orlando, FL. November 2005.
81. Guasto, J.S., Huang, P. & Breuer, K.S. "Statistical Particle Tracking Velocimetry Using Molecular and Quantum Dot Tracer Particles". Paper IMECE2005-80051. Proceedings of ASME IMECE. Orlando, FL. November 2005.
82. Tian, X., Iriate, J., Middleton, K., Galvao, R., Israeli, E., Roemer, A., Sullivan, Allyce, Song, A., Swartz, S., and Breuer, K.S. "Direct Measurement of the Kinematics and Dynamics of Bat Flight". AIAA Paper 2006-2865. San Francisco, CA. June 2006.
83. Galvao, R., Israeli, E., Song, A., Tian, X., Bishop, K., Swartz, S., and Breuer, K.S. "The Aerodynamics of Compliant Membrane Wings Modeled on Mammalian Flight Mechanics". AIAA Paper 2006-2866. San Francisco, CA. June 2006.
84. Wu, K.E., and Breuer, K.S. "Control of Turbulent Boundary Layers using FXLMS Feedforward Architectures". AIAA Paper 2006-3022. San Francisco, CA. June 2006.
85. McCamley, M., Henoeh, C., and Breuer, K.S. "Structure and Dynamics of Turbulent Flows Subjected to Lorentz Force Control". AIAA Paper 2006-3191. San Francisco, CA. June 2006.
86. Henoeh, C., Krupenkin, T.N., Kolodner, P., Taylor, J.A., Hodes, M.S., Lyons, A.M., Peguero, C., and Breuer, K.S. "Turbulent Drag Reduction Using Superhydrophobic Surfaces". AIAA Paper 2006-3192. San Francisco, CA. June 2006.
87. Wu, K. and Breuer, K. "Experiments in Turbulent Flow Control". Keynote lecture and paper at IUTAM Symposium on MEMS and Flow Control. London UK. September 2006.
88. Mykhaylo Kostandov, Igor Pivkin, Kenneth Breuer, Sharon Swartz, and David H. Laidlaw. Proper orthogonal decomposition and particle image velocimetry in bat flight, IEEE Visualization 2006 Poster Compendium, November 2006.
89. Song, A. and Breuer, K. "Dynamics of Compliant Membranes relevant to Mammalian Flight" Proceedings of AIAA Aerospace Science Meeting, Reno NV. Jan 2007.
90. Swartz, S. Diaz, J, Riskin, D.K., Song, A., Tian, X, Willis, D.J, and Breuer, K.S. "Wing Structure and the Aerodynamic Basis of Flight in Bats" Proceedings of AIAA Aerospace Science Meeting, Reno NV. Jan 2007.
91. David J. Willis, Emily R. Israeli, Per-Olof Persson, Mark Drela, Jaime Peraire, Sharon M. Swartz & Kenneth S. Breuer "A Computational Framework for Fluid Structure Interaction

- in Biologically Inspired Flapping Flight”. Proceedings AIAA Computational Aerodynamics Conference. Miami FL June, 2007
92. David J. Willis, Jaime Peraire, Kenneth S. Breuer “A Computational Investigation of Bio-Inspired Formation Flight and Ground Effect” Proceedings AIAA Computational Aerodynamics Conference. Miami FL June, 2007.
 93. Jeffrey Guasto and Kenneth Breuer. “Simultaneous Velocity and Temperature Measurements using Quantum Dots”. Gordon Research Conference on Microfluidics. Waterville Valley, NH. July 2007.
 94. Jeffrey Guasto, Peter Huang and Kenneth Breuer. “Measurement and Simulation of Near-Wall Colloidal Behavior”. IUTAM Symposium on Micro and Nanoscale Fluid Dynamics. Dresden, Germany. September 2007.
 95. Jeffrey Guasto and Kenneth Breuer. “Simultaneous Velocity and Temperature Measurements using Quantum Dots”. PIV2007. Rome, Italy September 2007.
 96. Charles Peguero, Charles Henoch & Kenneth Breuer.. “Turbulent Drag Reduction over Superhydrophobic Surfaces”. Symposium to honor John Kim. Palo Alto CA September 2007.
 97. Jeffrey S. Guasto and Kenneth S. Breuer “Simultaneous Velocity and Temperature Measurements using Single Quantum Dots”. Proceedings of PIV2008, Rome Italy, September 2007.
 98. Jeffrey Guasto, Peter Huang and Kenneth Breuer “Measurement and Simulation of Near-Wall Colloidal Behavior”. Proceedings of IUTAM Symposium on Advances in Microfluidics and Nanofluidics. Dresden Germany, September 2007.
 99. Zorzos, A.N., Guasto, J.S. and Breuer, K.S. “Visualization and Tracking of Electrospray Droplet Emissions using Fluorescence and Holographic Techniques”. IMECE2007-42127. Proceedings of ASME-IMECE, Seattle WA Nov, 2007.
 100. Arnold Song, Xiaodong Tian, Emily Israeli, Ricardo Galvao, Kristin Bishop, Sharon Swartz, and Kenneth Breuer , “The Aero-Mechanics of Low Aspect Ratio Compliant Membrane Wings, with Applications to Animal Flight”. Proceedings of AIAA Aerospace Sciences Meeting, Reno NV Jan 2008.
 101. Rye M. Waldman, Arnold J. Song, Daniel K. Riskin, Sharon M. Swartz, and Kenneth S. Breuer, “Aerodynamic Behavior of Compliant Membranes as Related to Bat Flight”. Proceedings, AIAA Fluid Dynamics Conference, Seattle WA. June 2008.
 102. Guasto, J. and Breuer K. “Evanescent wave imaging of particle adhesion, rolling and release near solid surfaces” International Symposium on Laser Applications to Fluid Mechanics. Lisbon, July 2008.
 103. Guasto, J.S. and Breuer, K.S. “Micro-velocimetry using Time-Resolved Measurements of Quantum Dots in a Microchannel”. Proceedings of the ECI International Conference on Heat Transfer and Fluid Flow in Microscale Whistler, 21-26 September 2008.
 104. Peguero, C. and Breuer KS. “ On Drag Reduction in Turbulent Channel Flows over a Superhydrophobic Surface” Proceedings of the 12th European Turbulence Conference, Marburg Germany, September 2009.
 105. Hubel, TY, Hristov, HI, Riskin, DK, Swartz, SM and Breuer, KS “The aerodynamics of different bat species”. Proceedings of the 15th International Bat Research Conference. Prague, CZ Aug 2010.
 106. Qian, B, *Gagnon, D, Powers, T and Breuer, KS. Synchronization and Chaotic Motion in a model system for hydrodynamics synchronization of flexible cilia”. Proceedings of 2nd

- European Conference on Microfluidics – Microfluidics 2010. Toulouse France. Dec 8-10 2010.
107. Jian Chen, Daniel K. Riskin, Tatjana Y. Hubel, David Willis, Arnold Song, Hanyu Liu, Kenneth Breuer, Sharon Swartz, and David H. Laidlaw. “Exploration of bat wing morphology through a strip method and visualization”. In SIGGRAPH (talk), Los Angeles, July 2010.
 108. D. H. Theriault, Z. Wu, N. I. Hristov, S. M. Swartz, K. S. Breuer, T. H. Kunz, and M. Betke. “Reconstruction and analysis of 3D trajectories of Brazilian free-tailed bats in flight.” In Workshop on Visual Observation and Analysis of Animal and Insect Behavior, held in conjunction with the 20th International Conference on Pattern Recognition, Istanbul, Turkey, August 2010.
 109. J. Bergou, S. M. Swartz, K. S. Breuer, and G. Taubin. 3D reconstruction of bat flight kinematics from sparse multiple views, In Proceedings of the IEEE ICCV Workshop on Dynamic Shape Capture, 2011.
 110. J. Bergou, S. Swartz, K. S. Breuer, G. Taubin. 3D Reconstruction and Analysis of Bat Flight Maneuvers from Sparse Multiple View Video, In Proceedings of the 1st IEEE Symposium on Biological Data Visualization, 2011.
 111. Schunk, C, Bahlman, J, Swartz, S & Breuer, KS “Measurement of the wake behind a bat-like flapper, and the influence of flapping frequency on lift generation”. AIAA Paper 2011-3116. 41st AIAA Fluid Dynamics Conference and Exhibit. Honolulu HI June 2011.
 112. Curet, O., Swartz, S., & Breuer, K. (2011), A self-excited flapping wing: Lift, drag and the implications for biological flight, in 41st AIAA Fluid Dynamics Conference and Exhibit. American Institute of Aeronautics and Astronautics, (doi: :10.2514/6.2011-3433).
 113. Breuer, K., Schunk, C., Bahlman, J., & Swartz, S. (2011), Measurement of the wake behind a bat-like flapper and the influence of the flapping frequency on lift generation, in 6th AIAA Theoretical Fluid Mechanics Conference. American Institute of Aeronautics and Astronautics, (doi: :10.2514/6.2011-3116).
 114. Waldman, R. & Breuer, K. (2012), Measurement of streamwise vortices in low-speed flight, in 50th AIAA Aerospace Sciences Meeting including the New Horizons Forum and Aerospace Exposition. American Institute of Aeronautics and Astronautics, (doi: :10.2514/6.2012-916).
 115. Franck, J., Swartz, S., & Breuer, K. (2012), Large-eddy simulations of a flapping plate, in 50th AIAA Aerospace Sciences Meeting including the New Horizons Forum and Aerospace Exposition. American Institute of Aeronautics and Astronautics, (doi: :10.2514/6.2012-296).
 116. Curet, O. M., Carrere, A., Waldman, R. M., & Breuer, K. S. (2013), Aerodynamic characterization of wing membrane with adaptive compliance, in 54th AIAA/ASME/ASCE/AHS/ASC Structures, Structural Dynamics, and Materials Conference. American Institute of Aeronautics and Astronautics, (doi: :10.2514/6.2013-1909).
 117. Onoue, K., Song, A., *Strom, B. W., & Breuer, K. S. (2014), Cyber-physical energy harvesting through flow-induced oscillations of a rectangular plate, in 32nd ASME Wind Energy Symposium. American Institute of Aeronautics and Astronautics, (doi: :10.2514/6.2014-0712).
 118. *Brownstein, I. D., Szlatenyi, C., & Breuer, K. S. (2014), Enhanced aerodynamic performance of a wind turbine airfoil section using plasma actuation, in 52nd Aerospace

- Sciences Meeting. American Institute of Aeronautics and Astronautics, (doi: :10.2514/6.2014-1244).
119. Chen, P.-T., Joshi, S. P., Swartz, S., Breuer, K., & Reich, G. W. (2014), Bat-inspired flapping flight, in 22nd AIAA/ASME/AHS Adaptive Structures Conference. American Institute of Aeronautics and Astronautics, (doi: :10.2514/6.2014-1120).
 120. J Franck, K Breuer, A Fawzi, *J Cardona, M Miller, Y Su, *A Medina, *C Loera, *E Junquera, *K Volkman, *R Lorick, *S Cowles, *B Ribeiro, S Winkler, T Derektor & S Mandre (2015) "Oscillating Hydrofoils for Tidal Energy Extraction: Experiments, Simulations and Salt Water Field Tests". Annual Meeting of the American Geophysical Union, San Francisco.
 121. *J Cardona, M Miller, Y Su, *A Medina, *C Loera, *E Junquera, *K Volkman, *R Lorick, *S Cowles, *B Ribeiro, S Winkler, T Derektor & KS Breuer S Mandre (2016) Field-testing of a 1kW Oscillating Hydrofoil Energy Harvesting System" Marine Energy Technology Symposium (METS).
 122. JS Park & KS Breuer. (2016), Measurement of apparent slip near a high-speed receding contact line on a hydrophobic surface., in Proceedings of the International Congress of Theoretical and Applied Mechanics. Montreal, Canada.
 123. JA Franck, *F Simeski, *J Cardona, Y Su, K Breuer, & S Mandre. (2016), Vortex and wake interactions of multiple oscillating foils for energy harvesting, in Proceedings of the International Congress of Theoretical and Applied Mechanics. Montreal, Canada.
 124. G. Alon Tzezana and K. S. Breuer. Steady and unsteady fluid-structure interactions with compliant membrane wings. In 55th AIAA Aerospace Sciences Meeting, page 0544, 2017
 125. J. R. Bohnker and K. S. Breuer. Control of separated flow using actuated compliant membrane wings. In Proceedings of the AIAA Flow Control Conference, Atlanta GA, 2018.
 126. G. Alon Tzezana and K. Breuer. Thrust, drag and wake structure in flapping compliant membrane wings. US National Conference on Theoretical and Applied Mechanics, Chicago, IL.
 127. Y. Su, Y. Zhu and K. Breuer "Stability, resonance response and optimal energy harvesting of an elastically mounted hydrofoil" Fluids and Elasticity, Malaga (Spain) June 2019.
 128. Das, A., Mathai, V., & Breuer, K. (2020), Deformation, forces, and flows associated with extremely compliant membrane disks, in AIAA Scitech 2020 Forum, [DOI] .
 129. Joshi, V., Jaiman, R. K., Li, G., Breuer, K., & Swartz, S. (2020), Full-scale aeroelastic simulations of hovering bat flight, in AIAA Scitech 2020 Forum, [DOI] .
 130. Luca, M. D. & Breuer, K. (2020), Wall effects on the transition to turbulence in low Reynolds number separated flows, in AIAA Scitech 2020 Forum, [DOI] .
 131. Zhu, Y., Su, Y., & Breuer, K. (2020), Non-linear stability boundaries of an elastically-mounted pitching wing, in AIAA Scitech 2020 Forum, [DOI] .
 132. Breuer, K. S., Drela, M., Fan, X., & Di Luca, M. (2020), Design and performance of an ultra-compact low- speed low-turbulence level wind tunnel for aerodynamic and animal flight experiments, Paper 2020-3107 AIAA Aviation 2020 [DOI] .
 133. Zhu, Y. and Breuer, K. (2023) 'A Data-Driven Experimental Approach for Modeling Aeroelastic Instabilities of Pitching Wings', in *AIAA SciTech*. National Harbor, Maryland. Available at: <https://doi.org/10.2514/6.2023-0278>.
 134. Hao, S., Breuer, K., Koh-Bell, A., Irani, R. and Kirsh-Posner, J. (2023) 'Proportional Control of Aerodynamic Forces using an Active Gurney Flap on a Wind Turbine Blade Section', in *Proceedings AIAA SciTech*. National Harbor, Maryland. Available at: <https://doi.org/10.2514/6.2023-0459>.

135. Zhu, Y. and Breuer, K. (2022) 'Aeroelastic Instability Boundaries of Pitching Swept Wings', in *AIAA Scitech*. San Diego, CA, p. 12. Available at: <https://doi.org/10.2514/6.2022-2328>.
136. Lee, H., Ho, I. and Breuer, K. (2022) 'Energy harvesting performance of an oscillating hydrofoil with a flexible tip', in *AIAA SciTech*. San Diego, CA, p. 0732. Available at: <https://doi.org/10.2514/6.2022-0732>.
137. Vejdani, H., Fan, X. and Breuer, K. (2022) 'Robustness analysis of minimally-actuated flapping wing systems due to aerodynamic modeling uncertainty', in *IEEE/ASME international conference on advanced intelligent mechatronics (AIM)*, pp. 670–676. Available at: <https://doi.org/10.1109/AIM52237.2022.9863335>.
138. Hao, S., Cooney, J., Fine, N. and Breuer, K. (2022) 'Using an Active Gurney Flap to Modify the Performance of a Wind Turbine Wing Section', in *AIAA Scitech*, San Diego, CA, p. 8. Available at: <https://doi.org/10.2514/6.2022-2293>.
139. Fan, X., Heye-Smith, S., Sollenberger, A. and Breuer, K. (2021) 'A bio-inspired flapping wing robot with twist and fold capability', in *Bulletin of the American Physical Society*. American Physical Society.
140. Anand, A., Wang, T.-K., Solano, T., Breuer, K., Mittal, R. and Shoele, K. (2021) 'Analytical Model to Infer Mask Peripheral Leakage Pattern in Large Population', in *Bulletin of the American Physical Society*. American Physical Society.
141. Rowley, K.M., Morris, A., Bortoni, A., Young, I., Boerma, D., Breuer, K. and Swartz, S.M. (2021) 'Evidence for a proximal-distal gradient in muscle responses to a wind gust perturbation in the Egyptian fruit bat', in *INTEGRATIVE AND COMPARATIVE BIOLOGY*. OXFORD UNIV PRESS INC JOURNALS DEPT, 2001 EVANS RD, CARY, NC 27513 USA, pp. E764–E765.
142. Tucker, E., Chowdhury, J., Cho, J.-Y., Shoele, K., Mittal, R. and Breuer, K. (2021) 'Flow permeability and flow-induced deformations of medical face masks and mask materials', in *Bulletin of the American Physical Society*. American Physical Society.
143. Zhu, Y., Mathai, V. and Breuer, K. (2021) 'Fluid damping scaling of elastically mounted pitching wings in quiescent water', in *Bulletin of the American Physical Society*. American Physical Society.
144. Durey, G., Luo, W., Dalal, S., Duclos, G., Pelcovits, R., Powers, T. and Breuer, K. (2021) 'Measuring the Stokes' drag in a microtubule-kinesin active gel', in *Bulletin of the American Physical Society*. American Physical Society.
145. Zhu, Y. and Breuer, K. (2021a) 'Nonlinear aeroelastic instabilities on swept wings', in *Proceedings of 2021 ICTAM*. Milan.
146. Zhu, Y. and Breuer, K. (2021b) 'Nonlinear aeroelastic instabilities on swept wings', in *AIAA Scitech 2021 Forum*.
147. Upfal, I., Zhu, Y. and Breuer, K. (2021) 'Optimal energy harvesting kinematics for compliant membrane hydrofoils', in *Bulletin of the American Physical Society*. American Physical Society.
148. Fan, X.Z., Swartz, S. and Breuer, K. (2021) 'Power requirements for flapping flight with heavy and highly articulated wings', in *INTEGRATIVE AND COMPARATIVE BIOLOGY*. OXFORD UNIV PRESS INC JOURNALS DEPT, 2001 EVANS RD, CARY, NC 27513 USA, pp. E244–E245.
149. Fan, X. and Breuer, K. (2021) 'Reduced-order modeling of a bat flying with heavy and highly articulated flapping wing', in *AIAA Scitech 2021 Forum*, p. 0344.

150. Fan, X., Breuer, K. and Vejdani, H. (2021) 'Wing Fold and Twist Greatly Improves Flight Efficiency for Bat-Scale Flapping Wing Robots', in *IEEE/RSJ International Conference on Intelligent Robots and Systems (IROS)*. Prague. Available at: <https://doi.org/10.1109/IROS51168.2021.9636735>.

151.

Papers presented, without published proceedings

(Complete only since 1999)

1. Jacobson, S.A. Frechette, L. Ehrich, F.F., & Breuer, K. S. "Development of a high speed microturbine/bearing rig". Presented at Annual Meeting, American Physical Society, DFD, New Orleans LA. Nov 1999.
2. Bae, J. Kang, E. Tan, C.S. and Breuer, K. S. "Active control of Tip Leakage flows" Presented at Annual Meeting, American Physical Society, DFD, New Orleans LA. Nov 1999.
3. K. Johan A. Westin, Zhiqiang Cao, Chang-Hwan Choi, Peter Huang, Kenneth S. Breuer "Liquid Flows in Sub-Micron Channels". Presented at Annual Meeting, American Physical Society, DFD, San Diego, CA. Nov 2001.
4. Gengxin Han & Kenneth Breuer. "Infrared microPIV for measurement inside silicon microdevices". Presented at Annual Meeting, American Physical Society, DFD, San Diego, CA. Nov 2001.
5. Jinil Park, Kenneth S. Breuer & Charles Henoeh "Control of Wall-Bounded Turbulence using Lorentz Forces". Presented at Annual Meeting, American Physical Society, DFD, San Diego, CA. Nov 2001.
6. J.C. Bird, M.J. Kim, A.J. VanParys, T.R. Powers, K.S. Breuer "Macroscale experiments on bacterial flagellar bundling". Presented at Annual Meeting, American Physical Society, DFD, Dallas TX. Nov 2002.
7. Jinil Park, Charles Henoeh & Kenneth Breuer, "Drag Reduction in Turbulent Channel Flows using Lorentz Forces". Presented at Annual Meeting, American Physical Society, DFD, Dallas TX. Nov 2002.
8. Chang-Hwan Choi, Johan Westin, Kenneth Breuer "Slip Flows in Hydrophilic and Hydrophobic Microchannels" Presented at Annual Meeting, American Physical Society, DFD, Dallas TX. Nov 2002.
9. Songwan Jin, Kenneth Breuer. "Evaporation in Long Microchannels". Presented at Annual Meeting, American Physical Society, DFD, Dallas TX. Nov 2002.
10. MunJu Kim, MinJun Kim, James C. Bird, Thomas R. Powers, Kenneth S. Breuer, Measurements and Simulations of Flows Induced by Model Bacterial Flagella. Presented at Annual Meeting, American Physical Society, DFD, E. Rutherford NJ. Nov 2003.
11. Conrad Lee, Gerardo Colmenero, David Goldstein, Kevin Wu, Kenneth Breuer Micro-actuators for Turbulent Boundary Layer Control Presented at Annual Meeting, American Physical Society, DFD, E. Rutherford NJ. Nov 2003.
12. Min Jun Kim, Kenneth Breuer. Mixing and Pumping in Microfluidic Systems using Motile Bacteria Presented at Annual Meeting, American Physical Society, DFD, E. Rutherford NJ. Nov 2003.
13. Peter Huang, Songwan Jin, Jinil Park,, Kenneth Breuer, Slip and Apparent Slip in Submicron Flows Presented at Annual Meeting, American Physical Society, DFD, E. Rutherford NJ. Nov 2003.

14. Maureen McCamley,, Jinil Park,, Charles Henoeh,, Kenneth Breuer Effects of Lorentz Force Control on the Structure of Turbulent Channel Flow Presented at Annual Meeting, American Physical Society, DFD, E. Rutherford NJ. Nov 2003.
15. Maureen McCamley & Kenneth Breuer “The Effects of Lorentz Force Control on The Structure of Turbulent Channel Flow” 13th European Turbulence Convergence, Aussois France. June 2004.
16. Kevin Wu & Kenneth Breuer “Adaptive Flow Control of Turbulent Channel Flow” 13th European Turbulence Convergence, Aussois France. June 2004.
17. Kenneth Breuer “Active Flow Control” (Invited plenary talk) 13th European Turbulence Conference, Aussois France. June 2004
18. Jeffrey Guasto, Peter Huang & Kenneth Breuer, “Statistical Particle Tracking Velocimetry using Single Molecule and Quantum Dot Tracers”, Presented at the APS.DFD annual meeting, Chicago, IL, Nov. 2005.
19. Sharon Swartz, Ricardo Galvao, Jose Iriarte, Emily Israeli, Kevin Middleton, Abigail Roemer, Allyce Sullivan, Xiaodong Tian & Kenneth Breuer, “Wing Kinematics and Wake Velocity Characteristics of Bat Flight”, Presented at the APS.DFD annual meeting, Chicago, IL, Nov. 2005.
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 Henoeh & 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 Aerosphere: 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. Quitry, 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
69. HRISTOV, N.I.; RISKIN, D.K.; HUBEL, T.Y.; ALLEN, L.C.; BREUER, K.S.; SWARTZ, S.M. Kinematics of a fast bat: Changes in wing kinematics with flight speed in the migratory bat (*Tadarida brasiliensis*) . Comp. Integ. Bio Annual Meeting Seattle WA Jan 2010
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 Henocho & 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, TL, 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.
138. C Schunk, SM Swartz, & KS Breuer. The effect of wing stroke and aspect ratio on the force generation a compliant membrane flapping wing, *Annual Meeting of the American Physical Society, Division of Fluid Dynamics*, Boston MA. November 2015.
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.
144. J Kiser & K Breuer. (2016), Unsteady aerodynamics of membrane wings with adaptive compliance, in APS Division of Fluid Dynamics Meeting Abstracts. Portland OR.
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.

148. Y Su, J Cardona, M Miller, S Mandre, & K Breuer. (2016), Vortex wake interactions and energy harvesting from tandem pitching and heaving hydrofoils, in APS Division of Fluid Dynamics Meeting Abstracts. Portland OR.
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.
155. Y. Su, K. Onoue, M. Miller, and K. Breuer. Pitch and heave dynamics of an elastically-mounted cyber- physical hydrofoil. Bulletin of the American Physical Society, 2017.
156. H. Vejdani, D. Boerma, S. Swartz, and K. Breuer. Dynamical modeling of hovering in insects, humming- birds, and bats. In INTEGRATIVE AND COMPARATIVE BIOLOGY, volume 57, pages E171–E171. OXFORD UNIV PRESS INC JOURNALS DEPT, 2001 EVANS RD, CARY, NC 27513 USA, 2017.
157. Y. Fan, K. S. Breuer, and F. Team. Simultaneous 3d tracking of passive tracers and microtubule bundles in an active gel. In APS Meeting Abstracts, 2017.
158. G. Alon Tzezana and K. Breuer. Thrust, drag and wake structure in flapping compliant membrane wings. Bulletin of the American Physical Society, 2018.
159. J. Bohnker and K. Breuer. Integrated sensing and actuation of unsteady flow-induced membrane defor- mations. 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 mem- brane 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.
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.

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 2022

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. Warick, 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 Invited lecture at the Martin Maxey Feschrift “Transport and Sedimentation in Active Media” Providence RI

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.

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

Research in Progress

1. Vertebrate flight: bat and bird flight.
2. Energy harvesting from tidal flows.
3. Behavior of elastic structures at high Reynolds number.
4. Active matter in microscale systems.
5. Behavior of elastic structures in microflows, with applications to bacterial motility and micro-devices.
6. Fluid Mechanics of Face Masks

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)

Current:

- Freshman and Sophomore Advisor (since 1999)
- School of Engineering, Engaged Scholarship Program representative (September 2015 – present)
- Mentor to new faculty (Dan Harris, Jesse Ault)
- Member, University Steering Committee on Sustainability (2020 -)

- 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, Faculty search committee for Sustainable energy in the School of Engineering (2023 -)

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)

Honors and awards

- President's award for Faculty Service, 2022
- Dean's award for Mentoring, 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 Budianto, "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)

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 Manghoulhal "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. (Presently: Intel Corp.)
21. Kyouhei Inoui, September 2012 – 2016. (Presently: 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)
25. Jillian Bohnker 2014 – 2019 (NUWC).
26. Gali Alon, September 2015 – 2021 (Rafael Industries, Israel).
27. Matteo di Luca 2016 – 2021.
28. Asimanshu Das 2018-2021 (PhD not completed)
29. Yuanhang Zhu 2018-2022 (Post Doc, UVa)
30. Xiaozhou Fan 2018-2023 (Post Doc Caltech)
31. Siyang Hao, 2020 – present
32. Eric Cardenas-Handy 2021 – present
33. Eva Erikson 2022 – present
34. Ronan Gissler 2022 – present
35. Anoop Kiren 2022 – present
36. Philip Gaudio 2023 -present

Post-Doctoral training

(Current position listed, 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-Elliot)
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. (Asst. Prof. U. Wisconsin)
9. Attila Bergou, January 2010 – July 2012 (DE Shaw, NYC)
10. Oscar Curet, March 2010 - October 2012 (Asst. Prof., Florida Atlantic University)
11. Tony Yu Jan 2011 – Dec 2012. (Software Engineering, indeed.com)
12. Bin Liu, Sept 2010 – Aug 2013 (Asst. 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) (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 – present)
25. Xiaowei He (Feb 2022 – present)