FOTIS SOTIROPOULOS

Dean, College of Engineering and Applied Sciences
Stony Brook University

Phone: 631-632-8380, Fax: 631-632-8205
Email: fotis.sotiropoulos@stonybrook.edu
Web: http://www.ceas.stonybrook.edu/

EARNED DEGREES

PhD	1991	University of Cincinnati	Aerospace Engineering
MS	1989	The Penn State University	Aerospace Engineering
Diploma	1986	National Tech. Univ. of Athens, Greece	Mechanical Engineering

PROFESSIONAL AND RESEARCH EXPERIENCE

STONY BROOK UNIVERSITY (2015 – present)

October 2015 – present	Dean, College of Engineering and Applied Sciences Professor, Department of Civil Engineering & Department of Mechanical Engineering

UNIVERSITY OF MINNESOTA (2006 – 2015)

November 2015 – present	Adjunct professor, Department of Civil Environmental and Geo-Engineering & Department of Mechanical Engineering
January 2010 – October 2015	Founding director, University of Minnesota EOLOS Wind Energy Research Consortium (funded by the US Dept. of Energy & industry)
October 2008 – October 2015	James L. Record Professor of Civil Engineering
December 2007 – October 2015	Professor of Biomedical Engineering (graduate appointment)
February 2006 – October 2015	Professor of Mechanical Engineering (graduate appointment)
January 2006 – October 2015	Director, St. Anthony Falls Laboratory

GEORGIA INSTITUTE OF TECHNOLOGY (1995 – 2005)

May 2005 – December 2005	Professor, School of Civil and Environmental Engineering and G. W. Woodruff School of Mechanical Engineering (joint appt.)
January 2002 – April 2005	Associate Professor, G. W. Woodruff School of Mechanical Engineering (joint appointment)
May 2000 – April 2005	Associate Professor (with tenure), School of Civil and Environmental Engineering
August 1995 – April 2000	Assistant Professor, School of Civil and Environmental Engineering

THE UNIVERSITY OF IOWA (1991 – 1995)

January 1995 – July 1995	Assistant Research Scientist, Iowa Institute of Hydraulic Research
June 1991 – December 1994	Postdoctoral Associate, Iowa Institute of Hydraulic Research

ADMINISTRATIVE EXPERIENCE & ACCOMPLISHMENTS

Director of the St. Anthony Falls Laboratory (SAFL), University of Minnesota (January 2006 – October 2015): SAFL is an interdisciplinary research and educational center of the College of Science and Engineering (CSE) focusing on problems that reside at the intersection of fluid mechanics with major societal challenges in energy, environment and health (www.safl.umn.edu). The laboratory is affiliated with the departments of Civil Engineering, Mechanical Engineering, Aerospace Engineering and Mechanics, Earth Sciences (CSE), and Ecology, Evolution and Behavior (College of Biological Sciences) and is home to: 16 faculty members and 43 graduate students from affiliated departments; 40 postdoctoral associates, research scientists, and engineers; and 18 administrative and information technology support staff. The average annual research expenditures for SAFL over the last four years have been approximately $6 million. The laboratory is the home of the EOLOS Wind Energy Research Consortium, supported by the Department of Energy, Sandia National Laboratories, and the private industry. Until August 2013, the laboratory was the administrative headquarters of the NSF-funded National Center for Earth Surface Dynamics (NCED).

Key accomplishments as SAFL director (2006-present):

- Grew the annual research expenditures of the SAFL from ~$0.5M in 2006 to an average of $6M/yr over the last four years. These amounts do not include the research expenditures of NCED, which had been already established when I became director.

- Led the administrative restructuring of SAFL from a laboratory facility under the department of Civil Engineering to an interdisciplinary research center on energy, environment and health under the College of Science and Engineering (CSE) – effective July 2011.

- Worked with the CSE dean to set in place a new budget model for SAFL, which establishes win-win financial incentives (indirect cost recovery sharing) for affiliated departments with the aim to strengthen opportunities for college-wide interdisciplinary research initiatives – effective July 2011.

- Secured the CSE dean's commitment to expand SAFL through strategic hires of new faculty jointly with appropriate CSE departments. 5 new faculty members have been added to the laboratory as a result of this arrangement in the last two years (2 from Mechanical Engineering, 2 from Aerospace Engineering, and 1 from Earth Sciences). 4 of the new assistant professors have won *NSF Career awards* leveraging SAFL's new vision and unique experimental facilities.

- Raised $16,800,000 to renovate the SAFL, a 75 year old building that has been added to but never renovated before:
  - Obtained $1,000,000 of State funds to renovate the SAFL parking deck (project completed in November 2009).
  - Led as the PI the development of a successful ARI-R2 proposal to NSF to renovate the laboratory and establish it as a shared, cyber-connected, national research facility on energy and the environment. The proposal was funded by NSF for $7,100,000.
  - Obtained an additional $8,700,000 from the State of Minnesota through a matching commitment from the UMN President to cover renovation expenses that do not qualify for ARI-R2 NSF funding.

  The laboratory renovation was completed in August 2013 (http://www.saflr3.umn.edu/).

- Developed the vision and raised the funds for establishing and sustaining the University of Minnesota EOLOS wind energy industry/academe research consortium (www.eolos.umn.edu). Raised as lead PI over $12,000,000 from the US Department of Energy, Sandia National Laboratories, and the industry, which helped establish SAFL and the University of Minnesota as national leaders in wind energy research and a major national hub for industry/academe collaborations. Industrial members of the EOLOS consortium have included, among others, XCEL Energy, Clipper Windpower, United Technologies Research Center, 3M, Lockheed Martin, WindLogics, and Barr Engineering.

- Led the development and oversaw the construction of the $5.5M EOLOS wind energy field research station at UMORE Park in Rosemount, MN, which was completed in October 2011. This state-of-the-art facility includes a fully instrumented 2.5MW Clipper Liberty turbine and a 130 m meteorological tower and is being used for industry/academe/DOE collaborative projects aimed at developing and demonstrating in the field innovative wind energy technologies.

- Developed the vision for establishing SAFL as a National facility for advancing Marine and Hydrokinetic (MHK) and hydro-electric energy in the US through cutting edge computational and experimental research. Raised as lead PI and co-PI over $1,800,000 from the NSF, US DOE, government labs, private industry and the UMN Initiative for Renewable Energy and the Environment (IREE) to support MHK research and establish the University of Minnesota at the leading edge of this rapidly emerging field.

- Developed the vision for the SAFL StreamLabs, which integrate state-of-the-art simulation-based research (the Virtual StreamLab) with SAFL's unique experimental facilities (indoor and outdoor StreamLabs) to develop a science-based approach for restoring rivers and streams. Raised as lead PI over $2,000,000 from the NSF, the National Academies (NCHRP), and the Korean government by leveraging funding I received as co-PI of NCED (the NSF STC headquartered at SAFL) to help position the laboratory at the leading edge of stream and river restoration research.

- Led the development of the SAFL Outdoor StreamLab, a unique outdoor experimental facility designed to be the leading facility for environmental restoration research (http://www.safl.umn.edu/facilities/osl). The facility opened in the summer of 2008 and has already been established as a premiere international facility for stream restoration research.

- Advanced simulation-based engineering science as a major research thrust of the laboratory and established in 2012 the laboratory's first massively parallel computer cluster (today over 4,000 compute nodes) to support simulation-based research on energy, environment and human health.

- Led the development of two strategic plans (2007 and 2015) for the laboratory focusing on interdisciplinary fluid mechanics research in energy, environment and health.

- Established the laboratory's first External Academic Review Board, which consists of international leaders from the academe and industry. The EARB visited the laboratory in 2007 and will be invited to visit again in 2015.

- Created (in 2013) the position of SAFL's *Associate Director for Diversity* to support K-12 outreach and promote research and educational partnerships between SAFL and minority-serving educational institutions.

- Led a systematic effort to increase the visibility and elevate the prestige of the laboratory nationally and internationally: created (in 2011) the position of the *SAFL Associate Director for Communications and Public Affairs*; overhauled the laboratory's web pages (www.safl.umn.edu) and created new printed material (brochures and newsletter); and systematically cultivated ties with federal and state policy makers and local and national media outlets. As a result of these efforts laboratory facilities have been toured by a number of high profiles federal officials, including: Deputy Secretary of the US Department of Energy Daniel Poneman, Senators Amy Klobuchar and Al Franken, and Congressman Erik Paulsen.

- Initiated a systematic fundraising effort through the University of Minnesota College of Science and Engineering development office and the University of Minnesota Foundation. Developed the case statement for SAFL and other supporting materials and is actively involved in ongoing fundraising efforts.

RESEARCH INTERESTS

In my research group we strive to advance simulation-based engineering science as a powerful tool for tackling frontier interdisciplinary scientific problems that reside at the intersection of fluid mechanics and computational science with renewable energy, environmental restoration, aquatic biology, and cardiovascular bioengineering. Our work focuses both on developing novel, multi-resolution and multi-physics computational fluid dynamics (CFD) algorithms as well as on applying these algorithms to make fundamental scientific contributions in fluid mechanics and tackle major societal problems in energy, environment and health. Ongoing research projects include: optimizing land-based and offshore wind turbines and farms; assessing and mitigating the environmental impacts of marine and hydrokinetic turbine arrays; developing ecologically-friendly hydro-turbine designs; developing science-based strategies for restoring rivers and streams; integrating big-data from remote sensing with high-fidelity computational modeling for flood risk assessment and mitigation; and developing a simulation-based framework for patient-specific optimization of medical devices and virtual surgery.

Areas of basic research that are being pursued as part of these projects include: numerical algorithms for fluid-structure interaction; immersed boundary methods; adaptive mesh refinement algorithms; large-eddy simulation of turbulence in atmospheric flows and aquatic waterways; simulation of sediment transport, scour, and river morphodynamics; large-eddy simulation of free-surface and bubbly flows; turbulent flows over natural and engineered rough surfaces; vortex-dominated flows and vortex-induced vibrations; simulation of aquatic swimming and flow-biota interactions; simulation of cardiac hemodynamics and tissue mechanics with native and prosthetic heart valves; and transport and mixing of particles in chaotically advected flows.

My research approach emphasizes simulation-driven experimentation and physics-driven computational modeling. For that reason, I am actively involved in experimental fluid mechanics work and collaborate extensively with researchers at the University of Minnesota and other universities around the country whose work emphasizes laboratory experimentation.

More details about my research can be found at: http://cfdlab.safl.umn.edu/

SCHOLARSHIP

For citations see Google Scholar profile: http://scholar.google.com/citations?user=rfF1324AAAAJ&hl=en

A. BOOKS CHAPTERS

1. Kang, S., Khosronejad, A., and Sotiropoulos, F., "Numerical simulation of turbulent flow and sediment transport processes in arbitrarily complex waterways," *Environmental Fluid Mechanics*, *Memorial Volume in Honor of Prof. Gerhard H. Jirka*, Eds. W. Rodi & M Uhlmann, CRC Press (Taylor and Francis group), pp. 123-151, 2012.

2. Sotiropoulos, F., Diplas, P., Khosronejad, A. "Scour around hydraulic structures," in the *Handbook of Environmental Fluid Dynamics* (edited by H. J. S. Fernando), Taylor and Francis, ISBN: 9781439816691, 2012.

3. Sotiropoulos, F., Aidun, C., Borazjani, I., and MacMeccan, R., "Computational Techniques for Biological Flows: From Blood-Vessel Scale Hemodynamics to Blood-Cells," *Image-Based Computational Modeling in the Human Circulatory System* (edited by Chandran, Udaykumar, and Reinhardt), *Springer Verlag*, Pages: 105-155 DOI: 10.1007/978-1-4419-7350-4_3 , 2011.

4. Sotiropoulos, F., "Experimental Visualization of Lagrangian Coherent structures Using Eulerian Averaging," *Analysis and Control of Mixing with Application to Micro and Macro Flow Processes*, Book Series: CISM Courses and Lectures, Issue: 510 Pages: 275-290 Published: 2009.

5. Sotiropoulos, F., "Turbulence Modeling for Environmental Flows," in *Computational Fluid Mechanics: Applications in Environmental Hydraulics*, John Willey, 2005.

6. Sotiropoulos, F., "Progress in Modeling 3-D Shear Flows Using RANS Equations and Advanced Turbulence Closures," Chapter 6 in *Calculation of Complex Turbulent Flows*, *Advances in Fluid Mechanics Series*, WIT Press, Southampton, UK (2000), pp. 209-248.

B. REFEREED PUBLICATIONS

Articles in refereed archival journals

Submitted

1. Khosronejad, A., and Sotiropoulos, F., "On the genesis and evolution of barchan dunes: Insights gained by large-eddy simulation, submitted, *J. Fluid Mechanics*, 2015.

2. Behara, S., and Sotiropoulos, F., "Vortex-induced vibrations of an elastically mounted sphere: The effects of Reynolds number and reduced velocity," submitted, *J. Fluid Mechanics*, 2015.

3. Boomsma, A., and Sotiropoulos, F., "Direct Numerical Simulation of Sharkskin Denticles in Turbulent Channel Flow," submitted, *Physics of Flui*ds, 2015.

4. Hill, C., Kozarek, J., Sotiropoulos, F., and Guala, M., "Hydrodynamics and sediment transport in a meandering channel with a model axial hydrokinetic turbine," submitted, *Water Resources Research*, 2015.

5. Khosronejad, A., Kozarek, J. L., Hansen, A. T., Guentzel, K., Hondzo, M., Wilcock, P., Guala, M., and Sotiropoulos, F., "High Fidelity Large-Eddy Simulation of Turbulence and Solute Transport in a Forested Headwater Stream," submitted, *J. of Geophysical Research – Earth Surface*, 2014.

6. Khosronejad, A., Kozarek, J. L., Hill, C., Diplas, P., Jha, R., and Sotiropoulos, F., "Simulation-based approach for stream restoration structure design: Rock vanes," submitted to the ASCE *Journal of Hydraulic Engineering*, 2014.

7. Mohammadi, M. H., and Sotiropoulos F., "Moving Least Square Reconstruction for Sharp Interface Immersed Boundary Methods," submitted to the *Journal of Computational Physics*, 2014.

Accepted and Published

8. Sotiropoulos F., Le, T., and Gilmanov, A., "Fluid Mechanics of Heart Valves and Their Replacements," in press, *Annual Reviews of Fluid Mechanics*, 2016.

9. Sotiropoulos, F., "Hydraulics in the era of exponentially growing computing power," invited vision paper by the editor, *IAHR Journal of Hydraulic Research*, to appear in 2015.

10. Sotiropoulos, F., and Khosronejad, A., "Sand Waves in Environmental Flows: Insights gained by coupling LES with morphodynamics," invited vision paper by the editors, *Physics of Fluids*, to appear in 2015.

11. Boomsma, A., and Sotiropoulos, F., "Riblet Drag Reduction in Mild Adverse Pressure Gradients: A Numerical Investigation," in press, *International Journal of Heat and Fluid Flow*, 2015.

12. Chamorro, L., Hill, C., Neary, V. S., Gunawan, B., Arndt, R.E.A., and Sotiropoulos, F., "Effects of energetic coherent motions on the power and wake of an axial flow turbine," *Physics of Flui*ds, 27 (5), art. no. 055104, 2015.

13. Gilmanov, A., and Sotiropoulos, F., "Comparative Hemodynamics in an Aorta with Bicuspid and Trileaflet Valves," in press, *J. of Theoretical and Computational Fluid Dynamics*, invited for special issue on *Recent Advances in Computational Modeling of Physiological Flows*, 2015.

14. Gilmanov, A., Le, T., and Sotiropoulos, F., "A Numerical Approach for Simulating Fluid Structure Interaction of Flexible Thin Shells Undergoing Arbitrarily Large Deformations in Complex Domains," *J. of Computational Physics*, 300, 814–843, 2015.

15. Yang Khosronejad, A., Kozarek, J. L., Hill, C., Diplas, P., Jha, R., and Sotiropoulos, F., "Simulation-based approach for stream restoration structure design: J-hook vanes," in press, IAHR *Journal of Hydraulic Research*, 2015.

16. Yang, X., and Sotiropoulos, F., "Analytical model for predicting the performance of arbitrary size and layout wind farms," *Wind Energy*, DOI: 10.1002/we.1894, 2015.

17. Kang, S., and Sotiropoulos, F., "Large-Eddy Simulation of 3D Turbulent Free Surface Flow past a Complex Stream Restoration Structure," in press, ASCE *Journal of Hydraulic Engineering*, 2015.

18. Kang, S., and Sotiropoulos, F., "Numerical study of flow dynamics around of a stream restoration structure in a meandering channel," *IAHR Journal of Hydraulic Research*, 53 (2), pp. 178-185, 2015.

19. Howard, K.B., Singh, A., Sotiropoulos, F., Guala, M. On the statistics of wind turbine wake meandering: An experimental investigation (2015) *Physics of Fluids*, 27 (7), art. no. 075103,

20. Kazakidi, A., Tsakiris, D.P., Angelidis, D., Sotiropoulos, F., Ekaterinaris, J.A. "CFD study of aquatic thrust generation by an octopus-like arm under intense prescribed deformations," *Computers and Fluids*, 115, pp. 54-65, 2015.

21. Khosronejad, A., Kozarek, J., Palmsten, M., and Sotiropoulos, F., "Numerical simulation of large dunes in meandering streams and rivers with in-stream rock structures," *Advances in Water Resources*, 81, pp. 45-61, 2015.

22. Morris, M., Mohammadi, M. H., Day, S., Hondzo, M., and Sotiropoulos, F., "Prediction of Glossosoma biomass spatial distribution in Valley Creek by field measurements and three-dimensional turbulent open-channel flow model," *Water Resources Research*, 51 (3), pp. 1457-1471, 2015.

23. Yang, X, Howard, K. B., Guala, M., and Sotiropoulos, F., "Effects of a Three-Dimensional Hill on the Wake Characteristics of a Model Wind Turbine," Physics of Fluids, 27, 025103, doi: 10.1063/1.4907685, 2015.

24. Pedrizzetti, G., Vlachos, P., Little, W., Sotiropoulos, F., Gharib, M., and Kheradvar, A., "Comments on Defining the Contribution of Diastolic Vortex Ring to Left Ventricular Filling," *J. of American College of Cardiology*, 65(23), 2573-2574.

25. Ramaswamy, S., Boronyak, S.M., Le, T., Holmes, A., Sotiropoulos, F. and Sacks, M.S., *"*A Novel Bioreactor For Mechanobiological Studies Of Engineered Heart Valve Tissue Formation Under Physiological Flow Conditions," *ASME J. of Biomechanical Engineering*, 136, Issue: 12, 2014.

26. Yang, X., Sotiropoulos, F., Conzemius, R. J., Walchtel, J. N., and Strong, M. B., "Large-eddy simulation of turbulent flow past wind farms in complex terrains: The Virtual Wind Simulator (VWiS)," *Wind Energy*, DOI: 10.1002/we.1802, 2014.

27. Chamorro, L., Lee, S., Olsen, D., Milliren, C., Marr, J., Arndt, R.E.A., and Sotiropoulos, F., "Turbulence effects on a full-scale 2.5 MW horizontal-axis wind turbine under neutrally stratified conditions," *Wind Energy*, DOI: 10.1002/we.1700, 2014.

28. Calderer, A., Kang, S., and Sotiropoulos, F., "Level set Immersed Boundary Method for Coupled Simulation of Air/Water Interaction with Complex Floating Structures," Vol. 266, pp. 201-227, *Journal of Computational Physics*, 2014.

29. Khosronejad A., Kozarek, J. L., and Sotiropoulos, F, "Simulation-based approach for stream restoration structure design: Model development and validation," *ASCE J. of Hydraulic Eng*., 140 Issue: 9, Article Number: 04014042, 2014.

30. Khosronejad A., and Sotiropoulos, F, "Numerical simulation of sand waves in a turbulent open channel flow," *Journal of Fluid Mechanics*, vol. 753, pp. 150-216, 2014.

31. Chamorro, L., Tobin, N., Arndt, R.E.A., and Sotiropoulos, F., "Variable-sized wind turbines are a possibility for wind farm optimization," *Wind Energy*, Vol. 17, Issue: 10, Pages: 1483-1494, 2014.

32. Hong, J., Toloui, M., Chamorro, L., Guala, M., Howard, K., Tucker, J., Sotiropoulos, F., "Natural snowfall reveals large-scale flow structures in the wake of a 2.5-MW wind turbine," *Nature Communications*, Volume: 5, Article Number: 4216, 2014.

33. Kang, S., Yang, X., and Sotiropoulos, F., "On the onset of wake meandering in an axial flow turbine in a turbulent open channel flow," *Journal of Fluid Mechanics*, (2014), vol. 744, pp. 376-403.

34. Sotiropoulos, F., and Yang, X., "Immersed Boundary Methods for Simulating Fluid Structure Interactions," invited paper, *Progress in Aerospace Science*, DOI: 10.1016/j.paerosci.2013.09.003, 2013.

35. Plott, J. R., Diplas, P., Kozarek, J., Dancey, C. L., Hill, C., and Sotiropoulos, F., "A generalized log-law formulation for a wide range of boundary roughness typically encountered in natural streams,", *Journal of Geophysical Research – Earth Surface*, Volume: 118 Issue: 3 Pages: 1419-1431, 2013.

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37. Le, T., Gilmanov, A., Sotiropoulos, F. High Resolution Simulation of Tri-Leaflet Aortic Heart Valve in an Idealized Aorta. *ASME Journal of Medical Devices*. 7(3), 030930 (Jul 03, 2013), doi:10.1115/1.4024520.

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39. Borazjani, I., Ge, L., Le, T., and Sotiropoulos, F., "A parallel overset-curvilinear-immersed boundary framework for simulating complex 3D flows in a general moving frame of reference," *Computers and Fluids,* 77 Pages: 76-96, 2013.

40. Le, T., Troolin, D., Amatya, D., Longmire, E., and Sotiropoulos, F., "Vortex phenomena in sidewall aneurysm hemodynamics: Experiments and numerical simulations," *Annals of Biomedical Engineering*, 41(10), pp. 2157-2170, 2013.

41. Khosronejad, A., Hill, C., Kang, S., and Sotiropoulos, F., "Computational and Experimental Investigation of Scour Past Laboratory Models of Stream Restoration Rock Structures," *Advances in Water Resources*, Volume 54, Pages 191–207, 2013.

42. Chamorro, L., Hill, C., Morton, S., Ellis, C., Arndt, R.E.A., and Sotiropoulos, F., "On the interaction between a turbulent open channel flow and an axial-flow turbine," Vol. 716, pp. 658-670, *Journal of Fluid Mechanics*, 2013.

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45. Tang, E., Haggerty, C. M., Khiabani, R. H., de Zelicourt, D., Kanter, J., Sotiropoulos, F., Fogel, M. A., Yoganathan, A. P., "Numerical and experimental investigation of pulsatile hemodynamics in the total cavopulmonary connection," Vol. 46, Issue 2, pp. 373-382, Journal of Biomechanics, 2013.

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54. Sotiropoulos, F., "Computational Fluid Dynamics for medical Device Design and Evaluation: Are We There Yet?" *Cardiovascular Engineering and Technology*, DOI: 10.1007/s13239-012-0095-5, 2012.

55. Kang, S., and Sotiropoulos, F., "Numerical modeling of 3D turbulent free surface flow in natural waterways," *Advances in Water Resources*, Volume: 40, Pages: 23-36, DOI: 10.1016/j.advwatres.2012.01.012, 2012.

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D. PRESENTATIONS (abstract only)

Conference Presentations

1. Gilmanov, A., and Sotiropoulos, F., "Image-Based Fluid-Structure Interaction Simulations of Heart Valve Prosthesis," 11th World Congress on Computational Mechanics (WCCM XI), Barcelona, Spain, July 20-25, 2014.

2. Calderer, A., Guo, X., Shen, L., and Sotiropoulos, F., "Fluid-Structure Interaction Simulation of Floating Wind Turbines Interacting with Complex, Large-Scale Ocean Waves,," 11th World Congress on Computational Mechanics (WCCM XI), Barcelona, Spain, July 20-25, 2014.

3. Yang, X., Khosronejad, A., and Sotiropoulos, F., "Large-eddy simulation of the flow over a hydrokinetic turbine mounted on an erodible bed," 66th Annual Meeting of the APS Division of Fluid Dynamics, Pittsburgh, PA, Nov. 24-26, 2013.

4. Calderer, A., Guo, X., Shen, L, Sotiropoulos, F., "Fluid-structure interaction simulation of floating wind turbines interacting with complex, large-scale ocean waves," 66th Annual Meeting of the APS Division of Fluid Dynamics, Pittsburgh, PA, Nov. 24-26, 2013.

5. Sotiropoulos, F., Yang, X., and Kang, S., "On the effects of turbine geometry on the far wake dynamics of an axial flow hydrokinetic turbine," 66th Annual Meeting of the APS Division of Fluid Dynamics, Pittsburgh, PA, Nov. 24-26, 2013.

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7. Hong, J., Toloui, M., Riley, S., Guala, M., Howard, K., Chamorro, L., Tucker, J., and Sotiropoulos, F., "Quantifying large-scale flow structures in the wake of a 2.5 MW wind turbine using natural snowfall," 66th Annual Meeting of the APS Division of Fluid Dynamics, Pittsburgh, PA, Nov. 24-26, 2013.

8. Khosronejad, A., and Sotiropoulos, F., "Large-eddy simulation of coupled turbulence, free surface, and sand wave evolution in an open channel," 66th Annual Meeting of the APS Division of Fluid Dynamics, Pittsburgh, PA, Nov. 24-26, 2013.

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12. Angelidis, D., and Sotiropoulos, F., "Parallel Cartesian grid refinement for 3D complex flow simulations, 66th Annual Meeting of the APS Division of Fluid Dynamics, Pittsburgh, PA, Nov. 24-26, 2013.

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15. Troolin, D., Chamorro, L., Lee, S. J., Arndt, R., and Sotiropoulos, F., "Three dimensional visualization of the interaction between energetic coherent motions and tip vortices in the wake of an axial-flow marine," 65th Annual Meeting of the APS Division of Fluid Dynamics, San Diego, CA, Nov. 18-20, 2012.

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47. Borazjani, I., and Sotiropoulos, F., "Large-eddy simulation of flow past wind turbine rotors," 63th Annual Meeting of the APS Division of Fluid Dynamics, APS, Minneapolis, MN, Nov21–23, 2010.

48. Yun, M., Wu J., Simon, H., Sotiropoulos, F., Aidun, C., and Yoganathan, A., "Numerical investigation of blood damage in the hinge area of bileaflet mechanical heart valves," 63th

Annual Meeting of the APS Division of Fluid Dynamics, APS, Minneapolis, MN, Nov21–23, 2010.

49. Sotiropoulos, F., and Kang, S., "On the physics of turbulent flows in natural meander bends: Insights gained by LES," 63th Annual Meeting of the APS Division of Fluid Dynamics, APS, Minneapolis, MN, Nov21–23, 2010.

50. Arndt, R., Chamorro, L., Sotiropoulos, F., "On the skin friction drag reduction in large wind turbines using sharp V-grooved riblets: Application to a 2.5 MW Clipper wind turbine section," 63th Annual Meeting of the APS Division of Fluid Dynamics, APS, Minneapolis, MN, Nov21–23, 2010.

51. Chamorro, L., Arndt, R., Sotiropoulos, F., "Turbulence characteristics around a staggered wind farm configuration. A wind tunnel study," 63th Annual Meeting of the APS Division of Fluid Dynamics, APS, Minneapolis, MN, Nov21–23, 2010.

52. Khosronejad, A., Kang, S., Borazjani, I., and Sotiropoulos, F., "Curvilinear Immersed Boundary Method for Simulating Sediment Transport and Scour in Open Channel Flows," 63th Annual Meeting of the APS Division of Fluid Dynamics, APS, Minneapolis, MN, Nov21–23, 2010.

53. Kang, S., and Sotiropoulos, F., "Level-set immersed boundary method for simulating 3D turbulent free surface flows in arbitrarily complex open channels," 63th Annual Meeting of the APS Division of Fluid Dynamics, APS, Minneapolis, MN, Nov21–23, 2010.

54. Le, T., Borazjani, I., and Sotiropoulos, F., "High resolution simulation of the left heart hemodynamics in patient-specific anatomies, 63th Annual Meeting of the APS Division of Fluid Dynamics, APS, Minneapolis, MN, Nov21–23, 2010.

55. Le, T., Borazjani, I., and Sotiropoulos, F., "Simulation of a Bi-leaflet Heart Valve in a Left Heart System," 6th World Congress on Biomechanics, Singapore, Aug. 1-6, 2010.

56. Borazjani, I., Sotiropoulos, F., Tytell, E., and Lauder, G. V. "3D Numerical Simulations of the C-start of a Bluegill Sunfish," 6th World Congress on Biomechanics, Singapore, Aug. 1-6, 2010.

57. Le, T., Borazjani, I., and Sotiropoulos, F., "Evaluating Operative Scenarios of Aortic Mechanical Heart Valve Implantation Using CFD," FDA / NHLBI / NSF Workshop on Computer Methods for Cardiovascular Devices, Rockville, MD, June 10-11, 2010.

58. Kang, S., Borazjani, I., and Sotiropoulos, F., "Coherent-Structure Resolving Simulations of Turbulence in Natural Streams with the Curvilinear Immersed-Boundary Method," 62th Annual Meeting of the APS Division of Fluid Dynamics, APS, Minneapolis, MN, Nov. 22-24, 2009.

59. Apsilidis, N., Raben, S., Borazjani, I., Diplas, P., Dancey, C., Vlachos, P., and Sotiropoulos, F., "Reynolds number effects on the dynamics of the turbulent horseshoe vortex: High resolution experiments and numerical simulations," 62th Annual Meeting of the APS Division of Fluid Dynamics, APS, Minneapolis, MN, Nov. 22-24, 2009.

60. Narayanan, V., Borazjani, I., Sotiropoulos, F., Tytell, E., and Lauder, G., "3D Numerical simulations of the C-start of a Bluegill Sunfish," 62th Annual Meeting of the APS Division of Fluid Dynamics, APS, Minneapolis, MN, Nov. 22-24, 2009.

61. Pekan, K., Jamaly, M., Kara, B., Keller, B., and Sotiropoulos, F., "Early embryonic intra-cardiac flow fields at three idealized ventricular morphologies," 62th Annual Meeting of the APS Division of Fluid Dynamics, APS, Minneapolis, MN, Nov. 22-24, 2009.

62. Le, T., Borazjani, I., and Sotiropoulos, F., "Fluid Structure Interaction simulation of heart valve prosthesis in patient-specific left-ventricle/aorta anatomies," 62th Annual Meeting of the APS Division of Fluid Dynamics, APS, Minneapolis, MN, Nov. 22-24, 2009.

63. Suresh, B., Borazjani, I., and Sotiropoulos, F., "Vortex-induced vibrations of an elastically mounted sphere at Re = 300: Hysteresis and vortex shedding modes," 62th Annual Meeting of the APS Division of Fluid Dynamics, APS, Minneapolis, MN, Nov. 22-24, 2009.

64. Ganesh, N, and Sotiropoulos, F., "Adaptive finite volume incompressible Navier--Stokes solver for 3D flows with complex immersed boundaries," 62th Annual Meeting of the APS Division of Fluid Dynamics, APS, Minneapolis, MN, Nov. 22-24, 2009.

65. Borazjani, I., Suresh, B., Ganesh, N, and Sotiropoulos, F., "An overset curvilinear/immersed boundary framework for high resolution simulations of wind and hydrokinetic turbine flows," 62th Annual Meeting of the APS Division of Fluid Dynamics, APS, Minneapolis, MN, Nov. 22-24, 2009.

66. Sotiropoulos, F., Le, T., and Borazjani, I., "Flow patterns and shear stress waveforms in intracranial aneurysms: The effect of pulsatility," 62th Annual Meeting of the APS Division of Fluid Dynamics, APS, Minneapolis, MN, Nov. 22-24, 2009.

67. Borazjani, I., and Sotiropoulos, F., "On the Hydrodynamics of Unsteady Swimming Maneuvers," *4th International Symposium on Aero-aqua-Bio-Mechanisms*, August 29 to September 2, 2009, Shanghai, China.

68. Borazjani, I., Le, T., and Sotiropoulos, F., "High Resolution Computational Framework For Patient-Specific Simulations Of Heart Valve Prosthesis," *FDA/ NHLBI/ NSF Workshop on Computer Methods for Cardiovascular Devices*, June 1-2, Rockville, MD.

69. Dasi, L., Liang, G., Borazjani, I., Simon, H., Sotiropoulos, F., and Yoganathan, A., "Experimental Requirements For Validating High Resolution FSI-CFD Tools For Heart Valve Modeling," *FDA/ NHLBI/ NSF Workshop on Computer Methods for Cardiovascular Devices*, June 1-2, Rockville, MD.

70. Borazjani, I., Ge, L., Simon, H., and Sotiropoulos, F., "Toward Patient-Specific Direct Numerical Simulation of Fluid-Structure Interaction in Prosthetic Heart Valves," *5th International Bio-Fluid Symposium and Workshop*, March 28 – 30, 2008, Caltech, Pasadena, California.

71. Borazjani, I., Ge, L., Simon, H., and Sotiropoulos, F., "Toward Patient Specific simulations of Cardiovascular Hemodynamics," VCU/NHLBI Workshop on Computational Modeling and Simulation of Cardiovascular and Cardiopulmonary Dynamics (sponsored by NIH), Virginia Commonwealth University, Richmond, VA, February 25, 2008.

72. Borazjani, I. and Sotiropoulos, F., "On the Hydrodynamics of Fishlike Swimming: Anguilliform vs. carangiform Locomotion," *61th Annual Meeting of the APS Division of Fluid Dynamics*, APS, San Antonio, Texas, Nov. 23-25, 2008.

73. Kang, S., Borazjani, I. and Sotiropoulos, F., "Curvilinear immersed-boundary method for simulating unsteady flows in shallow natural streams with arbitrarily complex obstacles," *61th Annual Meeting of the APS Division of Fluid Dynamics*, APS, San Antonio, Texas, Nov. 23-25, 2008.

74. de Zelicourt, D., Ge, L., Sotiropoulos, F., and Yoganathan, A. P., "Efficient Unstructured Cartesian/Immersed-Boundary Method with Local Mesh Refinement to Simulate Flows in Complex 3D Geometries" *61th Annual Meeting of the APS Division of Fluid Dynamics*, APS, San Antonio, Texas, Nov. 23-25, 2008.

75. Sotiropoulos, F., Borazjani, I., Malkiel, E., and Katz, J., "Numerical simulation of a self-propelled copepod during escape" *61th Annual Meeting of the APS Division of Fluid Dynamics*, APS, San Antonio, Texas, Nov. 23-25, 2008.

76. Simon, H., Ge, L., Sotiropoulos, F., and Yoganathan, A. P., "Numerical study of the influence of the hinge gap width on the hinge flow fields of bileaflet mechanical heart valves," *61th Annual Meeting of the APS Division of Fluid Dynamics*, APS, San Antonio, Texas, Nov. 23-25, 2008.

77. Le, T., Borazjani, I. and Sotiropoulos, F., "Vorticity dynamics in an intracranial aneurysm," *61th Annual Meeting of the APS Division of Fluid Dynamics*, APS, San Antonio, Texas, Nov. 23-25, 2008.

78. Borazjani, I., and Sotiropoulos, F., **"**Probing the hydrodynamics of fish-like swimming via numerical simulation: Recent insights and future challenges**,"** 3rd International Conference "Smart Materials, Structures and Systems," Sicily, Italy, June 8 to 13, 2008.

79. Borazjani, I., and Sotiropoulos, "Toward the Numerical Simulation of Self-Propelled Aquatic Swimming: Recent Progress and Future Challenges," *Inaugural Conference of ASCE Institute on Engineering Mechanics (EM-08),* Minneapolis, MN, May 18-21, 2008.

80. Borazjani, I., Ge, L., Simon, H., de Zelicourt, D., Sotiropoulos, F., Yoganathan, A.P., and Kallmes, D., "Toward Patient-Specific Cardiovascular Flow Simulations with Sharp Interface Immersed Boundary Methods: Recent Successes and Future Ventures," *Inaugural Conference of ASCE Institute on Engineering Mechanics (EM-08),* Minneapolis, MN, May 18-21, 2008.

81. Borazjani, I., Ge, L., and Sotiropoulos, F., "Toward Patient-Specific Optimization of Heart-Valve Prosthesis via Computational Fluid Dynamics," Session on *Computer-Aided design of Medical Devices* at the *Design of Medical Devices Conference*, April 15 – 17, 2008, Minneapolis, MN.

82. Sotiropoulos, F., and Borazjani, I., "On the Hydrodynamics of Body/Caudal Fin Locomotion for Carangiform Swimmers," *60th Annual Meeting of the APS Division of Fluid Dynamics*, APS, Salt Lake City, Utah, Nov. 18-20, 2007.

83. Paik, J., and Sotiropoulos, F., "DES of turbulent vortex breakdown in an abrupt axisymmetric expansion at Re = 10^5," *60th Annual Meeting of the APS Division of Fluid Dynamics*, APS, Salt Lake City, Utah, Nov. 18-20, 2007.

84. Le, T., Ge, L., Sotiropoulos, F., Kallmes, D., Cloft, H., Lewis, D., Dai, D., Ding, Y., and Kadirvel, R., "Image based numerical simulation of hemodynamics in a intracranial aneurysm," *60th Annual Meeting of the APS Division of Fluid Dynamics*, APS, Salt Lake City, Utah, Nov. 18-20, 2007.

85. Escauriaza, C., and Sotiropoulos, F., "Near-bed sediment transport by coherent structures in the turbulent flow past a surface-mounted cylinder," *60th Annual Meeting of the APS Division of Fluid Dynamics*, APS, Salt Lake City, Utah, Nov. 18-20, 2007.

86. Parsheh, M., Marr, J., Paik, J., Sotiropoulos, F., and Porte-Agel, F., "Dynamics of recirculating flows around a surface-piercing rectangular block mounted at the side of an open channel," *60th Annual Meeting of the APS Division of Fluid Dynamics*, APS, Salt Lake City, Utah, Nov. 18-20, 2007.

87. Borazjani, I., Sotiropoulos, F., Malkiel, E., and Katz, J., "On the hydrodynamics of planktonic microcrustacean locomotion: Numerical simulations and experiments," *60th Annual Meeting of the APS Division of Fluid Dynamics*, APS, Salt Lake City, Utah, Nov. 18-20, 2007.

88. Borazjani, I., Dasi, L., Sotiropoulos, F., and Yoganathan, A., "Fluid structure interaction (FSI) simulation of bileaflet mechanical heart valve in an anatomic aorta geometry," *60th Annual Meeting of the APS Division of Fluid Dynamics*, APS, Salt Lake City, Utah, Nov. 18-20, 2007.

89. Ge., L., Borazjani, I., Dasi, L., Sotiropoulos, F., Yoganathan, A., "Fluid structure interaction (FSI) simulation of a bileaflet mechanical heart valve (MHV)," *59th Annual Meeting of the APS Division of Fluid Dynamics*, APS, Tampa, FL, Nov. 19-21, 2006.

90. Dasi, L., Murphy, D. W., Simon, H., Ge L., Sotiropoulos, F., Yoganathan, A., "Vorticity dynamics of Bi- and Trileaflet Prosthetic Heart Valves," *59th Annual Meeting of the APS Division of Fluid Dynamics*, APS, Tampa, FL, Nov. 19-21, 2006.

91. Zelicourt, D., Wang, C., Kitajima, H., Pekkan, K., Sotiropoulos, F., and Yoganathan, A., "Unstructured Cartesian/Immersed Boundary Method for Flow Simulations in Complex 3D Geometries," *59th Annual Meeting of the APS Division of Fluid Dynamics*, APS, Tampa, FL, Nov. 19-21, 2006.

92. Escauriaza, C., and Sotiropoulos, F., "Stirring inertial particles in three-dimensional flows in a cylindrical container with exactly counter-rotating lids," *59th Annual Meeting of the APS Division of Fluid Dynamics*, APS, Tampa, FL, Nov. 19-21, 2006.

93. Sotiropoulos, F., Paik, J., and Escauriaza, C. "Reynolds number effects on the coherent dynamics of the turbulent horseshoe vortex." *59th Annual Meeting of the APS Division of Fluid Dynamics*, APS, Tampa, FL, Nov. 19-21, 2006.

94. Paik, J., Escauriaza, C. and Sotiropoulos, F. "On the physics of the bimodal coherent dynamics of the turbulent horseshoe vortex at $Re=1.16\times10^5$" *59th Annual Meeting of the APS Division of Fluid Dynamics*, APS, Tampa, FL, Nov. 19-21, 2006.

95. Eghbalzadeh, A. Paik, J. and Sotiropoulos, F. "High-resolution 2D and 3D numerical simulations of gravity currents." *59th Annual Meeting of the APS Division of Fluid Dynamics*, APS, Tampa, FL, Nov. 19-21, 2006.

96. Ge, L., Borazjani, I., Gilmanov, A., Sotiropoulos, F., "Progress in Computational Bio-Fluid Dynamics: From Aquatic Locomotion to Cardiovascular Hemodynamics," mini-symposium on *Biomimetics and Fluid Mechanics*, 2006 ECCOMAS Conference on Computational Fluid Dynamics, Egmond aan Ze, The Netherlands, Sept. 5-8, 2006.

97. Diane de Zelicourt, Chang Wang, Fotis Sotiropoulos, and Ajit Yoganathan, "Unstructured Cartesian Sharp-Interface Computational Method for Flow Simulations in Realistic Cardiovascular Anatomies," 5th World Congress of Biomechanics, Munich, July 29 – Aug. 4, 2006.

98. Lakshmi P. Dasi, Helene Simon, Liang Ge, Fotis Sotiropoulos, and Ajit Yoganathan, "In-vitro Characterization of Flow through Mechanical Heart Valves," 5th World Congress of Biomechanics, Munich, July 29 – Aug. 4, 2006.

99. Liang Ge, Lakshmi P. Dasi, Helene Simon, Fotis Sotiropoulos, and Ajit Yoganathan, "Simulating Prosthetic Heart Valve Hemodynamics in Realistic Aorta Anatomies**,"** 5th World Congress of Biomechanics, Munich, July 29 – Aug. 4, 2006.

100. Liang Ge, Fotis Sotiropoulos, and Ajit Yoganathan, "Simulating Prosthetic Heart Valve Hemodynamics: Numerical Model Development," APS-DFD 2005 meeting, Chicago, Illinois, Nov. 2005.

101. Chang Wang, Anvar Gilmanov, Fotis Sotiropoulos, and Ajit Yoganathan, "The Hemodynamics of Total Cavo-Pulmonary Connection Anatomies," APS-DFD 2005 meeting, Chicago, Illinois, Nov. 2005.

102. Cristian Escauriaza, Joongcheol Paik, and Fotis Sotiropoulos, "Coherent Structure Dynamics of the Horse Vortex System Induced by a Circular Cylindrical Pier Mounted on a Flat Plate at Re=40,000." APS-DFD 2005 meeting, Chicago, Illinois, Nov. 2005.

103. Joongcheol Paik, and Fotis Sotiropoulos, "DES of Turbulent Flow Past a Wall-Mounted Wing," APS-DFD 2005 meeting, Chicago, Illinois, Nov. 2005.

104. Kerem Pekkan, Prasad Dasi, Chang Wang, Diane de Zelicourt, Fotis Sotiropoulos, Ajit Yoganathan, "Fluid flow and dissipation in intersecting counter-flow pipes," APS-DFD 2005 meeting, Chicago, Illinois, Nov. 2005.

105. Sotiropoulos, F., Paik, J., and Sale, M. J. "Unsteady CFD modeling of hydraulic turbine flows: Toward environmentally friendly and energy efficient hydropower installations." *World Water & Environmental Resources Congress*, Salt Lake City, Utah, USA, June 27 – July 1, 2004.

106. Gilmanov, A., Ge, L., Sotiropoulos, F., and Yoganathan, A., "Numerical Simulation of Flow in Anatomically Realistic Total Cavo-Pulmonary Connections," APS-DFD 2004 meeting, Seattle, Washington, Nov. 2004.

107. Ge, L., Leo, H, Sotiropoulos, F., and Yoganathan, A., "Flow Physics in a Bileaflet Heart Valve at Near Peak-Systole Reynolds Number," APS-DFD 2004 meeting, Seattle, Washington, Nov. 2004.

108. Ge, L., Gilmanov, A., Leo, H., Carberie, J., Sotiropoulos, F., and Yoganathan, A. "Toward a Predictive CFD Framework for Multi-Scale Cardiovascular Flows," BMES 2004 Annual Meeting, Philadelphia.

109. Ge, L., Pekkan, K., Leo, H., de Zelicourt, D., Sotiropoulos, F., and Yoganathan, A., "Numerical Modeling of Cardiovascular Flows: CFD & Experiments," *XXI ICTAM*, 15-21 August 2004,

Warsaw, Poland.

110. Sotiropoulos, F., Gilmanov, A., and Yen, J. "Hydrodynamics of Planktonic Microcrustacean Locomotion: CFD Simulations and Experiments," ASLO-TOS 2004 Ocean Research Conference, Honolulu, Hawaii, Feb. 17 – 19, 2004.

111. Ge, L. Pekkan, P., Leo, H. L., de Zelicourt, D., Sotiropoulos, F., & Yoganathan, A., "Computational Fluid Dynamics Modeling Of Complex Cardiovascular Flows: Integrating High Resolution CFD & Experimental Techniques," *NSF/NIH Workshop on Transport Processes in Biomedical Systems*, Bethesda, MA, May 6-7, 2004.

112. Ge, L. Pekkan, P., Leo, H. L., de Zelicourt, D., Sotiropoulos, F., & Yoganathan, A., "Toward Quantitatively Accurate Modeling of Cardiovascular Flows: Integrating High Resolution CFD & Experimental Techniques," *International Bio-Fluid Mechanics Workshop and Symposium,* Caltech, Pasadena, Dec. 13-15, 2003.

113. Gilmanov, A., Posada, N., and Sotiropoulos, F., "Hydrodynamics of Fishlike Swimming: Effects of swimming kinematics and Reynolds number," 56th Annual Meeting of the Division of Fluid Dynamics, APS, Newark, NJ, Nov. 2003

114. Yen, J., Gilmanov, A., and Sotiropoulos, F., "Hydrodynamics of Planktonic Microcrustacean Locomotion: Turning Wake Vortices into Communication Signals," 56th Annual Meeting of the Division of Fluid Dynamics, APS, Newark, NJ, Nov. 2003.

115. Ge, L., Sotiropoulos, F., and Yoganathan, A. "DNS and URANS of Flow in a Bileaflet Mechanical Prosthetic Heart Valve," 56th Annual Meeting of the Division of Fluid Dynamics, APS, Newark, NJ, Nov. 2003.

116. Paik, J., and Sotiropoulos, "DES and URANS of a Complex Separated 3D Flow," 56th Annual Meeting of the Division of Fluid Dynamics, APS, Newark, NJ, Nov. 2003.

117. Sotiropoulos, F., and Paik, J. "Numerical Simulation of Concave Wall Turbulence Using Unsteady Statistical Turbulence Models," 56th Annual Meeting of the Division of Fluid Dynamics, APS, Newark, NJ, Nov. 2003.

118. Lackey, T., and Sotiropoulos, F. "Chaotic Advection in a Closed Cylinder with Exactly Counter-Rotating Endwalls," 56th Annual Meeting of the Division of Fluid Dynamics, APS, Newark, NJ, Nov. 2003.

119. Balaras, E., Gilmanov, A., and Sotiropoulos, F., "A non-boundary conforming method for unsteady incompressible flows with moving boundaries," 55th Annual Meeting of the Division of Fluid Dynamics, APS, Houston, TX, Nov. 2002

120. Healy, T. M., Sotiropoulos, F., and Yoganathan, A. P., "Computational Simulation of Blood Flow through Bileaflet Mechanical Aortic Valve Prostheses," 6th Annual Hilton Head Workshop on Prosthetic Heart Valves, Hilton Head Island, SC, March 6-10, 2002.

121. Gilmanov, A., and Sotiropoulos, F., "Numerical Simulation of Fish-Like Swimming at Low Reynolds Numbers," 55th Annual Meeting of the Division of Fluid Dynamics, APS, Houston, TX, Nov. 2002.

122. Ge, L., and Sotiropoulos, F., "Unsteady RANS of Complex 3D Turbulent Flows Using Overset Grids," 55th Annual Meeting of the Division of Fluid Dynamics, APS, Houston, TX, Nov. 2002.

123. Sotiropoulos, F., Tang, H., and Jones, C., "The dynamics of massively separated laminar flows past wall-mounted obstacles in a channel," 54th Annual Meeting of the Division of Fluid Dynamics, APS, San Diego, CA, Nov. 19-21, 2001.

124. Jones, S., and Sotiropoulos, F., "Fluid motion and mixing in helical static mixers," 54th Annual Meeting of the Division of Fluid Dynamics, APS, San Diego, CA, Nov. 19-21, 2001.

125. Tang, H., Sotiropoulos, F., " An overset-grid, domain decomposition method for simulating 3D, unsteady, incompressible flows," 54th Annual Meeting of the Division of Fluid Dynamics, APS, San Diego, CA, Nov. 19-21, 2001.

126. Sotiropoulos, F., Tang, H., and Jones, C., "The dynamics of massively separated laminar flows past wall-mounted obstacles in a channel," 54th Annual Meeting of the Division of Fluid Dynamics, APS, San Diego, CA, Nov. 19-21, 2001.

127. Jones, S., and Sotiropoulos, F., "Fluid motion and mixing in helical static mixers," 54th Annual Meeting of the Division of Fluid Dynamics, APS, San Diego, CA, Nov. 19-21, 2001.

128. Lackey, T. C. and Sotiropoulos, F., "Particle path dynamics in a steady confined swirling flow," 54th Annual Meeting of the Division of Fluid Dynamics, APS, San Diego, CA, Nov. 19-21, 2001.

129. Chrisohoides, A., and Sotiropoulos, F., "An experimental technique for visualizing Lagrangian coherent structures in aperiodic free-surface flows," ," 54th Annual Meeting of the Division of Fluid Dynamics, APS, San Diego, CA, Nov. 19-21, 2001.

130. Healy, T., Sotiropoulos, F., and Yoganathan, A., "Computational Simulation of Blood Flow through Bileaflet Heart Valve Prosthesis," 54th Annual Meeting of the Division of Fluid Dynamics, APS, San Diego, CA, Nov. 19-21, 2001.

131. Sotiropoulos, F., Lackey, T. and Webster, D. R. "Chaotic and Quasi-Periodic Dynamics in 3D Steady Vortex Breakdown Bubbles," ICTAM-2000, Chicago, Aug. 27 – Sept. 2 2000.

132. Sotiropoulos, F. and Mezić, I., "Ergodic theory and experimental visualization of chaos in 3D flows," 53rd Annual Meeting of the Division of Fluid Dynamics, APS, Washington, D.C., Nov. 19-21, 2000.

133. Lackey, T., Sotiropoulos, F., and Webster, D. R., "The Dynamics Of Multiple Vortex Breakdown Bubbles In Confined Swirling Flows: Quasi-Periodic Order In The Wake Of Chaos," 53rd Annual Meeting of the Division of Fluid Dynamics, APS, Washington, D.C., Nov. 19-21, 2000.

134. Jones, C., and Sotiropoulos, F., "Vorticity dynamics in the near-field of non-axisymmetric jets," 53rd Annual Meeting of the Division of Fluid Dynamics, APS, Washington, D.C., Nov. 19-21, 2000.

135. Tang, H., and Sotiropoulos, F., "Numerical simulations of low Reynolds number flow past wall-mounted obstacles in a channel," 53rd Annual Meeting of the Division of Fluid Dynamics, APS, Washington, D.C., Nov. 19-21, 2000.

136. Sotiropoulos, F., and Ventikos, Y., "Three-Dimensional Vortex Breakdown in A Cylindrical Container: Artifact of Flow Visualization or Cross-Sections Through Chaos?" 1999 APS Division of Fluid Dynamics Meeting, New Orleans, LA.

137. Ventikos, Y., Sotiropoulos, F., and Webster, D., "Chaotic Advection in Stationary Vortex Breakdown Bubbles: Computations and Experiments," 1999 APS Division of Fluid Dynamics Meeting, New Orleans, LA.

138. Sotiropoulos, F., and Ventikos, Y., "Structure of Steady Vortex Breakdown in a Cylindrical Container with a Rotating Lid," 1998 APS Division of Fluid Dynamics Meeting, Philadelphia, PA.

139. Ventikos, Y., and Sotiropoulos, F., "Sidewall Instabilities in a Cylindrical Container with a Rotating Lid," 1998 APS Division of Fluid Dynamics Meeting, Philadelphia, PA.

140. Sotiropoulos, F., and Patel, V. C. "Numerical Assessment Of Advanced Turbulence Models In 3-D Shear Flows," presented at the *Office of Naval Research (ONR) State-of-the-Art Workshop on Non-Equilibrium Turbulence*, March 10-12, 1993, Tempe, Arizona.

SPONSORED RESEARCH

Since I joined the University of Minnesota in 2006 I have raised ~$16.5M of externally sponsored research funds. This amount does not include other funds I also raised as PI, such as $7.1M from NSF for the renovation of the St. Anthony Falls Laboratory and internal University of Minnesota cost-share and/or seed research funding (~$1.1M). All active and completed internally and externally sponsored grants I have received during my career to date are listed below.

Active grants

Collaborative Research: Crossing the boundary: motion of solid objects across air-liquid interfaces
National Science Foundation
June 2015 – May 2018
Role: Principal investigator $200,000

Virtual Wind Simulator with Advanced Control & Aeroelastic Model for Improving the Operation of Wind Farms
XCEL Energy, Renewable Development Fund
Duration: 60 months
June 2015 – May 2020
Role: Principal Investigator. Co-PI: Pete Seiler, Aerospace Engineering $1,400,000

The Roosevelt Island Tidal Energy Project: Optimizing Novel Hydro-Kinetic Renewable Energy Systems via State-of-the-Art Computational Fluid Dynamics Research.
National Science Foundation (Partnership for Innovation: Building Innovation Capacity).
June 2013 – May 2016
Role: Principal Investigator $600,000

High-fidelity computational modeling of wind farms
Sandia National Laboratories (April 2013 – March 2016)
Role: PI $450,000

Scour at the Base of Retaining Walls and Other Longitudinal Structures
Transportation Research Board of the National Academies (May 1, 2012 – Nov. 1, 2016)
Role: Principal Investigator (co-PI: Panos Diplas, Virginia Tech) $500,000

High Fidelity Simulation of Bridge Foundation Scour at the Mississippi River Bridge No. 9321
Minnesota Department of Transportation Contract No. 99008 Work Order No. 160 (May 2014-April 2015)
Role: PI $100,000

High-resolution computational algorithms for simulating offshore wind turbines and farms: Model development and validation.
US Department of Energy (Jan. 1, 2012 - Dec. 31, 2015).
Role: Principal Investigator (in collaboration with Sandia National Labs) $1,200,000

High-resolution computational algorithms for simulating offshore wind turbines and farms: Model development and validation.
University of Minnesota Initiative for Renewable Energy and the Environment (IREE)

Matching grant for the DOE offshore modeling grant (Jan. 1, 2012 - Dec. 31, 2015)
Role: Principal Investigator $120,000

CFD Simulation of MCES Metering Stations to Improve Meter Performance
Metropolitan Council Environmental Services (March 2014 – February 2015) $48,000
Role: PI

Image-Guided Simulation Based Approach For Native and Prosthetic Aortic Valves in Patient-Specific Anatomies
Lillehei Heart Institute High Risk High Reward grant (March 2014 – February 2016)
Role: PI (co-PI Paul Iaizzo) $100,000

Completed grants

Fluid dynamics and circulatory efficiency in Fontan palliation
UMN Viking Research Grant (April 2013 – March 2015**)**
Role: Co-PI (50%). PI: Dr. Lazaros Kochilas, MD, Division of Pediatric Cardiology $50,000

Turbine aeration design software for mitigating adverse environmental impacts resulting from conventional hydropower turbines.
US Department of Energy and Alstom Power (Jan. 1, 2012 – May 2015).
Role: co-PI (33%) with John Gulliver & Roger Arndt
Total budget: $500,000 $167,000

Renovation of the St. Anthony Falls Laboratory-University of Minnesota, for research and training in energy and environmental sustainability
NSF ARI-R2 (Oct. 1, 2010 – Dec. 30, 2014)
Role: Principal Investigator $7,100,000

Advancing marine and hydrokinetic energy through cutting-edge research: Hydrodynamic performance and environmental impacts.
University of Minnesota Initiative for Renewable Energy and the Environment (IREE)
Special opportunity grant (Jan. 1, 2012 – Dec. 31, 2013)
Role: Principal Investigator $225,000

Computational optimization of medical devices for stroke prevention
Funded by the UMN Division of Clinical Cardiology (April-March 2014)
Role: PI $30,000

Effects of Chest Wall and Spinal Deformation on Cardiac Energetics and Cardiac Blood Flow
University of Minnesota **Institute for Engineering in Medicine** (Jan. 1 2012 – Dec. 31 2013)
Role: Co-PI with Dr. Daniel Saltzman $40,000

Laboratory testing of marine hydrokinetic reference turbines
Oak Ridge National Laboratory (Oct. 1, 2011 – May 30, 2013).
Role: Principal Investigator $100,000

An Industry/Academe Consortium for Achieving 20% wind by 2030 through Cutting-Edge Research and Workforce Training.
US Department of Energy (Jan. 25, 2010 – Aug. 30, 2013).

Role: Principal Investigator $8,000,000

An Industry/Academe Consortium for Achieving 20% wind by 2030 through Cutting-Edge Research and Workforce Training.
University of Minnesota Initiative for Renewable Energy and the Environment (IREE)
Matching grant for the DOE consortium grant (Jan. 25, 2010 - Aug. 30, 2013)
Role: Principal Investigator $400,000

Development of a High-Resolution Virtual Wind Simulator for Optimal Design of Wind Energy Projects
XCEL Energy (October 1, 2008 to July 30, 2013)
Role: Principal Investigator $1,000,000

Development of a High-Resolution Virtual Wind Simulator for Optimal Design of Wind Energy Projects
University of Minnesota Initiative for Renewable Energy and the Environment (IREE)
Matching funds for the XCEL Energy grant (October 1, 2008 to May 30, 2013)
Role: Principal Investigator $252,000

Computational Modeling of Mechanical Heart Valves
National Institutes of Health (July 1, 2008 – June 30, 2013)
Role: Principal Investigator with John Oshinski and Ajit Yoganathan (Georgia Tech)
Total budget: $1,500,000 $750,000

Science and Technology Center: National Center for Earth Surface Dynamics.
Turbulence-resolving simulations of flow and sediment transport processes in natural waterways
National Science Foundation (August 1, 2007- July 30, 2013).
Role: co-PI (2.5%) with 19 other PIs
Total budget: $20,000,000 $500,000

Collaborative Research—Physics Based Modeling of Bridge foundation Scour
National Science Foundation (May 1, 2008 to April 30, 2013)
Role: Principal Investigator $300,000

NCHRP Project 24-33. Development of Design Methods for In-Stream Flow Control Structures
Transportation Research Board of the National Academies (August 1, 2008 to January 30, 2012)
Role: Principal Investigator $600,000

Improved Structure and Fabrication of Large, High-Power Kinetic Hydropower Systems (KHPS) Rotors.
Advanced Water Power Projects, US Department of Energy (March 1, 2009 – May 30, 2012)
Role: co-PI (20%), member of the team led by Verdant Power Inc.
Total budget: $2,000,000 $360,000

NSF workshop on basic research at the intersection of marine/hydrokinetic energy and the aquatic environment
National Science Foundation (May 2011 – October 2011)
Role: Co-PI with Efi Foufoula-Georgiou & Michele Guala $40,000

Experimental investigation of hydrokinetic turbines
Oak Ridge National Laboratory (March 22, 2011 – Oct. 31, 2011).
Role: Principal Investigator $50,000

High-resolution numerical simulations of physiologic pulsatile flow in intracranial aneurysms

Mayo Clinic, Rochester, MN (Jan. 1, 2010 – Dec. 31, 2010)
Role: Principal Investigator $15,000

Fish Micro-Habitat Dynamics around In-Stream Flow Control Structures
Industry Academe Cooperation Foundation, Yonsei University, South Korea (Nov. 2008 – Dec. 2010)
Role: Principal Investigator $ 90,000

Collaborative Research—Biologically-Generated Flow by Plankton: Simulations & Experiments.
National Science Foundation (August 1, 2006- July 30, 2009)
Role: PI (in collaboration with J. Yen, Georgia Tech) $150,000

Bioengineering Research Partnership: The Hemodynamics of Fontan Surgeries
National Institutes of Health (2004-2007)
Sub-contract to UMN. PI: A. P. Yoganathan (Biomedical Eng., Georgia Tech) $60,000

Computational Modeling of Flows in Mechanical Heart Valves
National Institutes of Health (2003-2007), Co-PI with A. P. Yoganathan (Georgia Tech)
Total budget: $1,400,000 $660,000

Unsteady Numerical Modeling of Draft-Tube and Tailrace Flows in Hydropower Plants
U.S. Department of Energy and Oak Ridge National Laboratory (2001-2005)
Role: PI $800,000

Laboratory and 3D Numerical Modeling with Field Monitoring of Regional Bridge Scour in Georgia
Georgia DOT (2000-2005), Co-PI with T. W. Sturm (Georgia Tech) & M. Landers (USGS)
Total budget: $673,360 $200,000

Physical and Numerical Modeling of Mixing in Water Storage Tanks
AWWA Research Foundation (2002-2005), with P. Roberts (Georgia Tech)
Total budget: $150,000 $55,000

Advanced Numerical Modeling of Bridge Foundation Scour
National Science Foundation **CAREER** award (1999-2004)
Role: Principal Investigator $310,000

Large-eddy simulation of turbulent circular jet flows
U.S. Department of Energy and Oak Ridge National Laboratory (1999-2001)
Role: Principal Investigator $124,000

Two-Dimensional Hydrodynamic Model for the ACT and ACF River Basins
Georgia Water Resources Institute (2000-2001)
Role: Principal Investigator $17,000

A Lagrangian/Eulerian Method for Predicting DO Transfer in Autoventing Hydroturbines
Tennessee Valley Authority and Voith hydro Inc. (1997-1990)
Role: PI $60,000

A Numerical Model for Estimating Fish Passage through Hydraulic Powerplants
Voith Hydro Inc. (1997-1999)
Role: Principal Investigator $220,000

Conceptual Designs for Advanced Hydroturbines
U.S. Department of Energy and Voith Hydro Inc. (1995-1998)
Role: Principal Investigator $128,500

HONORS, AWARDS AND OTHER RECOGNITIONS

A. HONORS AND AWARDS

Member of the *High Fidelity Modeling* committee, convened by the EERE office of the Department of Energy to develop and implement the strategic vision for DOE's A2E (Atmosphere to Electrons) Wind Energy Research center (2013-present).

Sackler Distinguished Lecturer, *The Mortimer and Raymond Sackler Institute of Advanced Studies*, Tel Aviv University, Israel (2013-2014).

Kavli Institute for Theoretical Physics Invited Lecturer, Program on *Geophysical Fluid-Particle Flows (GEOFLOWS13)*, Santa Barbara, CA (October 2013).

2011 Gallery of Fluid Motion Contest Winner (with T. Le, D. Coffey, and D. Keefe), American Physical Society, 64st APS/DFD meeting, Baltimore, Maryland. Video entry: "*Vortex formation and instability in the left ventricle*" http://arxiv.org/abs/1110.3428

Elected Fellow of the American Physical Society (2009): "For seminal contributions in vortex dynamics, flow-structure interactions, and chaotic dynamics in civil, mechanical and biomedical applications."

2009 Gallery of Fluid Motion Contest Winner (with I. Borazjani), American Physical Society, 61st APS/DFD meeting, San Antonio, Texas. Video entry: "*Why don't mackerels swim like eels? The role of form and kinematics on the hydrodynamics of undulatory swimming*" http://ecommons.library.cornell.edu/handle/1813/11529

James L. Record Professorship, Department of Civil Engineering, University of Minnesota (2008)

Invited participant, National Academy of Engineering 2005 German-American Frontiers of Engineering, Potsdam, Germany, May 4-7, 2005

Sustained Research Development Award, School of Civil and Environmental Engineering, Georgia Institute of Technology (2003)

Invited Participant, National Academy of Engineering 8th Annual Symposium on Frontiers of Engineering, Irvine, CA, Sept. 19-21, 2002

Early Career Development (CAREER) award, National Science Foundation (1999-2003)

B. JOURNAL EDITORIAL BOARDS

Energies: Editorial Board (2014 -)

ASME Journal of Biomechanical Engineering: Associate editor (2011 – 2013)

Computers & Fluids: Editorial board (2011 – present)

ASCE Journal of Hydraulic Engineering: Guest editor of special issue "River Flow Hydrodynamics: Physical and Ecological Aspects," 2010.

International Journal of Heat and Fluid Flow: Editorial board (2006 – present)

ASCE Journal of Hydraulic Engineering: Associate editor (2002 – present)

C. KEYNOTE AND MAJOR INVITED LECTURES

"*Numerical Simulation of Sand Waves in Turbulent Flows: From Sediment Grains to Mega-Dunes*," keynote lecture, International Conference on Model Integration across Disparate Scales in Complex Turbulent Flows, Penn State University, June 15-17, 2015.

"*Simulation-Based Approach for Site-Specific Optimization of Marine and Hydrokinetic Energy Conversion Systems*," keynote lecture, special session on Marine & Renewable Energy, 36th IAHR World Congress, 28 June – 3 July, 2015, The Hague, The Netherlands.

"*Sand waves in environmental flows: Insights gained by LES*," keynote lecture, 67th Annual American Physical Society DFD Meeting, San Francisco, Nov. 23-25, 2014.

"*Computational Studies of Fluid Structure Interaction in Biological Flows*," invited lecture, Workshop on the Fluid Mechanics of Collective Behavior Across Scales, organized by ETH Zurich, Castasegna, Switzerland, Sept. 22-26 2014.

"*Sharp-interface immersed boundary methods for simulating fluid-structure interaction problems in energy, environment and human health applications: State of the art and future ventures*," Keynote Lecture, CFD2014, Trondheim, Norway, June 17-19, 2014.

"*Numerical Simulation of Sand Waves in Turbulent Open Channel Flows*," Sackler Institute for Advanced Studies Distinguished Lecture, Tel Aviv University, Tel Aviv, Israel, May 21, 2014.

"*On the structure of Turbulence in Wind Turbine Wakes*," Sackler Institute for Advanced Studies Distinguished Lecture, Tel Aviv University, Tel Aviv, Israel, May 19, 2014.

"*Complex Flows in Wind Plants*," invited lecture, AWEA Wind Power 2014, Las Vegas, Nevada, May 6, 2014.

"*On the Mechanisms of Wake Meandering in Axial Flow Turbines: Insights Gained by Large-Eddy Simulation*," Keynote talk, International Conference on Future Technologies for Wind Energy," Laramie, Wyoming, Oct. 7-9, 2013.

"*Large-eddy simulation of hydro-morphodynamics: From ripples in scour holes to mega-dunes in large rivers*," invited lecture, Kavli Institute for Theoretical Physics, October 1, 2013.

"*Wake Meandering in Axial Flow Turbines; New Insights from multi-resolution LES and implications for modeling wind-farm/atmosphere interactions*," invited lecture, Argonne National Laboratory

Workshop on Atmospheric Modeling at LES Scales: Opportunities and Challenges, Argonne, IL, Sept. 4-5, 2013.

"*Fluid mechanics challenges in energy, environment and health: Insights Gained via Numerical Simulation*," Distinguished Cash Lecture, Edward E. Whitacre Jr. College of Engineering, Texas Tech University, March 25, 2013.

"*Numerical simulation of bed morphodynamics in natural waterways: From ripples to dunes*," invited lecture, AGU Fall meeting, Earth Processes – Modeling Developments for Sediment Transport and Other Multiphase Flows, San Francisco, CA, Dec. 7, 2012

"*Science-Based Approach for Advancing Marine and Hydrokinetic Energy: Integrating Numerical Simulations with Experiments*," AGU Fall meeting, Ocean Sciences – Marine & Renewable Energy, San Francisco, CA, Dec. 9, 2011

"*Hydraulic & Environmental Engineering in the 21st Century*," Centennial Celebration Lecture, Hydraulic & Environmental Engineering Department, Catholic University of Santiago, Santiago, Chile, Nov. 8, 2011

"*Tackling environmental challenges in hydropower facilities with CFD modeling Recent Advances and Future Challenges*," Keynote Lecture, Jacques Cartier International Symposium on the Future of Hydroelectric Power, Montreal, Canada, October 4, 2011

"*Patient-Specific Simulation of Cardiac Devices: Recent advances and future challenges*," Keynote Lecture, High Performance Computing Symposium (HPCS – 2011): HPC in Medical Science, Montreal, Canada, June 14, 2011

"*Turbulent Flow and Sediment Transport Phenomena in Natural Waterways Insights gained by Large-Eddy Simulation*," Keynote Lecture, Gerhard Jirka Memorial Colloquium, Institute for Hydromechanics, Karlsruhe Institute of Technology, Karlsruhe, Germany, June 3-4, 2011.

"*The Curvilinear Immersed Boundary Method Applications to Engineering, Environmental & Biological Flows*," Keynote Lecture, International Symposium on Computational Fluid Engineering, Yonsei University, Seoul, Korea, April 11, 2011

"*Advanced Computational Fluid Dynamics Modeling for Real-Life Hydraulic Engineering Flows: Toward the Virtual StreamLab*," Keynote Lecture, Chilean Congress of Hydraulic Engineering, October 19-22, 2009.

"*Visualizing Coherent Vortices in Simulated Engineering and Biological Flows: From Rings and Hairpins to Horseshoes and Worms*," Keynote Lecture, 9th Asian Symposium on Visualization (9ASV), Hong Kong, China, June 4-8, 2007.

"*Modeling 3D Flows in Arbitrarily Complex Domains with Deformable Immersed Boundaries: From Hydrodynamics to Biofluids*," Keynote Lecture, ASME/WSEAS Int. Conference on FLUID MECHANICS, Corfu Island, Greece, August 17-19, 2004.

"*Toward Quantitatively Accurate CFD Predictions of Hydroturbine Flows*," Keynote Lecture, 20th IAHR Symposium on Hydraulic Machinery and Systems, Charlotte, NC, August 2000.

D. INVITED SEMINARS AT ACADEMIC INSTITUTIONS AND INDUSTRY

Department of Mechanical and Aerospace Engineering, Princeton University, April 10, 2015; Department of Mechanical Engineering, UC Santa Barbara, Santa Barbara, CA, October 20, 2014; Inst. For Water Management, Hydrology & Hydraulic Engineering, BOKU University, Vienna, Austria, September 29, 2014; School of Mechanical Engineering, Purdue University, West Lafayette, IN, September 10, 2014; Department of Mechanical Engineering, Utah State University, Logan, UT—March 28, 2014; Department of Mechanical and Process Engineering, ETH-Z, Zurich, Switzerland—April 18, 2013; Institute of Mechanical Engineering, EPFL, Lausanne, Switzerland—April 16, 2013; Mayo Clinic Bioengineering Lecture, Dept. of Physiology and Biomedical Engineering, Rochester MN—March 8, 2013; Bruce Podwal Seminar Series, Dept. of Civil Engineering, City College of New York, New York, NY—April 17, 2012; School of Mechanical Engineering, Tel Aviv University, Tel Aviv, Israel—April 2, 2012; Argonne National Laboratory, Argonne, IL – February 10, 2012; Dept. of Mechanical & Material Engineering, Portland State University, Portland Oregon - Nov. 2011; Dept. of Civil and Environmental Engineering, University of Texas at Austin, Austin, TX - Sept. 2011; Dept. of Mechanical and Industrial Engineering, University of Iowa, Iowa City, IA - February 10, 2011; Civil & Environmental Engineering Seminar Series, École Polytechnique Fédérale Lausanne (EPFL), Switzerland - Nov. 4, 2010; Dept. of Mechanical Engineering, University of Houston - August 12, 2010; George W. Woodruff School of Mechanical Engineering, Georgia Institute of Technology (Feb. 11, 2010); Dept. of Mechanical Engineering, Columbia University - Jan. 29, 2010; Ocean Engineering Seminar, Massachusetts Institute of Technology – May 1, 2009; Applied Mathematics Colloquium, Brown University - April 30, 2009; Department of Civil Engineering, Yonsei University, South Korea - April 13, 2009; GALCIT colloquium, California Institute of Technology - February 8, 2008; Dept. of Civil and Environmental Engineering, University of Michigan - April 6, 2007; Center for Environmental and Applied Fluid Mechanics, Johns Hopkins University - March 2, 2007; Environmental Fluid Mechanics Laboratory, Dept. of Civil Engineering, Stanford University - February 13, 2007; ETH Zurich Computational Laboratory, Zurich, Switzerland - April 19, 2006; Saint Anthony Falls Laboratory, University of Minnesota, Minneapolis, MN - Nov. 9, 2005; Laboratory for Hydraulic Machines, Ecole Polytechnic Federal de Lausanne (EPFL), Lausanne, Switzerland - May 3 2005; Department of Building, Civil & Environmental Engineering, Concordia University, Montreal, Canada - May 20, 2005; Boeing Corporation, Renton, WA - September 23, 2003; Battelle Seattle Research Center, Seattle, WA - September 22, 2003; Oak Ridge National Laboratory, Oak Ridge, TN - April 23, 2003; Department of Mathematics and Computer Science, Emory University, Atlanta, Georgia - October 11, 2002; US Army Corps of Engineers, Portland, Oregon - July 2002; Department of Civil and Environmental Engineering, The University of Iowa, Iowa City, IA - April 12, 2002; University of Ottawa, Canada - February 15, 2002; MW HARZA, Chicago, Illinois - December 18, 2001; *Applied Mechanics Colloquium*, Division of Engineering and Applied Science, Harvard University - February 28, 2001; Department of Mechanical and Aerospace Engineering, Arizona State University, Tempe, AZ - February 15, 2000; Laboratory of Geophysical and Industrial Flows, Grenoble National Polytechnic Institute, Grenoble, France - October 27, 1999; Department of Civil and Environmental Engineering, Virginia Tech - October 20, 1999; US Army Corps of Engineers, Portland, Oregon - July 1997; US Army Corps of Engineers, Waterways Experimental Station, Vicksburg, Mississippi - April 1997; Centre for Research on Computation and its Application (CERCA), University of Montreal, Montreal - March 27, 1997; Department of Mechanical Engineering, Florida State University - March 26, 1996; Ecole Central de Nantes, Fluid Mechanics Laboratory, Division of Numerical Modeling, Nantes, France - April 29-30, 1996; Department of Mechanical Engineering, University of Manchester, Manchester, UK - June 10, 1996; Hydrosystems Group," Oak Ridge National Laboratory, Oak Ridge, TN - November 13, 1995; Dept. of Mech. and Aerospace Eng., Arizona State University - October 5, 1994.

E. INVITED SYMPOSIA, WORKSHOPS, & PANEL TALKS

Sandia National Laboratories *Wind Turbine Blade Workshop*, Albuquerque, NM, August 26, 2014; Mathematical Biosciences Institute (Ohio State Univ.) workshop on "*Mathematics Guiding Bioartificial Heart Valve Design*," Columbus, OH, Oct. 28-Nov. 1, 2013; NSF workshop on "*Environmental and Extreme Multiphase Flows*," Gainesville, FL, March 14-16, 2012; DOE workshop on "*Complex wind energy flows*," Boulder, CO, Jan. 17-19, 2012; Cornell University Workshop on wind energy, Ithaca, NY, December 6-7; Special session on "Lagrangian Coherent Structures and Invariant Manifolds," *8th AIMS Conference on Dynamical Systems, Differential Equations and Applications*, Dresden, Germany, May 25 - 28, 2010; VCU/NHLBI *Workshop on Modeling the Heart in 3D* (sponsored by NIH) Virginia Commonwealth University, Richmond, VA, October 14-16; Computational Hydraulics for Transportation Workshop, Argonne Lab, West Chicago, IL, September 23-24; FDA/ NHLBI/ NSF Workshop on Computer Methods for Cardiovascular Devices, Rockville, MD, June 1-2; *International Symposium on River Restoration*, hosted by the EcoRiver21 Research Center, Yonsei University, Seoul, Korea, April 14; FDA/NIH/NSF panel on computational modeling for cardiovascular device design, invited to represent academia in the area of heart valves, Rockville, MD, 10/29/08; Mini-symposium on *Flow Control in Aquatic Systems and its Application to Bio-inspired Autonomous Underwater Systems* at 3rd International Conference "Smart Materials, Structures and Systems," Sicily, Italy, June 8 to 13, 2008; Session on *Computer-Aided design of Medical Devices* at the *Design of Medical Devices Conference*, April 15 – 17, 2008, Minneapolis, MN; *5th Int. Bio-Fluid Symposium and Workshop*, California Institute of Technology, Pasadena, California, March 28 – 30; VCU/NHLBI *Workshop on Computational Modeling and Simulation of Cardiovascular and Cardiopulmonary Dynamics* (sponsored by NIH) Virginia Commonwealth University, Richmond, VA, February 25; Mini-Symposium on *Biomimetics and Fluid Mechanics* at the 2006 ECCOMAS; Conference on Computational Fluid Dynamics, Egmond aan Ze, The Netherlands.; Mini-symposium on *Advances in Turbulence Modeling* at 2006 International Conference on Hydroscience and Engineering (ICHE 2006), Philadelphia; Advanced course and workshop on "*Analysis and Control of Mixing with Application to Micro and Macro Flow Processes*" at the International Center for Mechanical Science (CISM) Udine (Italy), June 27-July 1; Panelist for session "Symposium III: Eco-Power: Using Modeling Tools for Environmental Gains," Waterpower XIV Conference in Austin, Texas, July 18-22; Symposium on "Advances in Modeling of the Cardiovascular System" at the 12th International Conference on Biomedical Engineering, Singapore Dec 7-10; Mini-symposium on *Advances in Turbulence Modeling at 2004 International Conference on Hydroscience and Engineering*, Brisbane, Australia, May 30 – June 3; NSF/NIH Workshop on Transport Processes in Biomedical Systems, Bethesda, MA, May 6-7; *International Bio-Fluid Mechanics Workshop and Symposium* California Institute of Technology, Pasadena, California, Dec. 13-15; Mini-Symposium on *Dynamical Systems and Control of Mixing*, *International Conference on Industrial and Applied Mathematics*, Sydney, Australia; Mini-Symposium on *Three-Dimensional Mixing*, *2003 SIAM Conference on Applications of Dynamical Systems*, Snowbird, Utah; Forum on the *Fluid Mechanics of Mixing Phenomena II: Fundamentals and Industrial Applications*, 2002 ASME FED Summer Meeting, Montreal, Canada.

F. JOURNAL COVER PAGES & SPECIAL FEATURES

Cover page of the *ASME Journal of Biomechanical Engineering*, Volume 132 (1), 2010. The image shows numerical simulations of flow patterns on the leaflets of a trileaflet valve in the aortic position.

Work on aquatic swimming featured in *Inside the Journal of Experimental Biology*, a section of the *Journal of Experimental Biology* that highlights in lay language key developments in biology: *Simulated Fish Races Suggest that Water Shaped Fish*, *J. Exp. Biol*. 2010 213.

Cover page of the *Journal of Experimental Biology,* volume 212, issue 4, 2009. The image shows numerical simulations of anguilliform swimming.
http://jeb.biologists.org/content/vol212/issue4/cover.shtml

Cover page of the *ASCE Journal of Hydraulic Engineering*, January 2004-present. The image shows numerical simulations of 3D, unsteady turbulent flow past complex bridge piers.

G. INVITED JOURNAL PAPERS

2015 Invited to contribute a vision paper in the *IAHR Journal of Hydraulic Research*

Invited to contribute a vision paper in the *Physics of Fluids*.

2014 Invited to contribute a paper in the *Annual Review of Fluid Mechanics*, entitled "Fluid Mechanics of Heart Valves and Their Replacements." To appear in 2016.

2013 Review paper on "*Immersed Boundary Methods for Fluid Structure Interactions*," invited by the editor of the *Progress in Aerospace Science*, in press, 2013.

2009 Paper presented at the 6rd Turbulence and Shear Flow Phenomena Meeting (Seoul, S. Korea, June 2009) was selected by the Editors-in-Chief of the *International Journal of Heat and Fluid Flow* to be included in a special issue containing the best papers from the meeting (appeared in 2010).

2009 Review paper invited by the editor *Medical and Biological Engineering and Computing*, 2009.

2008 Paper presented at the IUTAM Symposium on "Unsteady Separated Flows and their Control," (Corfu, Greece, June 20, 2007) was selected by the symposium organizer (M. Braza) included in a special issue of the *Journal of Flow Turbulence and Combustion* (appeared in 2011).

2003 Paper presented at the 3rd Turbulence and Shear Flow Phenomena Meeting (Sendai, Japan, June 2003) was selected by the Editors-in-Chief of the *International Journal of Heat and Fluid Flow* included in a special issue containing the best papers from the meeting.

1998 Paper presented at the 11th Turbulent Shear Flows Meeting (Grenoble, Sept. 1997) was selected by the Editors-in-Chief (B. E. Launder, N. Kasagi, and F. W. Schmidt) of the *International Journal of Heat and Fluid Flow* and included in a special issue containing the best papers from the meeting.

H. DISTINCTIONS OF PhD THESES SUPERVISED

2013 Mohammad Hajit received a *Hydro Fellowship* from the US Hydro Research Foundation for his work on two-phase flow modeling of flows in aerating hydro turbines.

2008 Cristian Escauriaza received the Alvin Anderson Award (St. Anthony Falls Laboratory) for his work on unsteady modeling of bed-load transport and scour.

2005 The thesis of Liang Ge was awarded the 2005 *Georgia Tech Sigma-Xi best Thesis Award*.

2001 The thesis of S. C. Jones was awarded the 2001 AWWA *Academic Achievement Award*

I. INVITED REVIEW PANELS

2010-2015 NSF Hydrologic Sciences review panel

Aug. 2012 ARPA-E review panel

Nov. 2009 Chair of external review panel, NSERC Industrial Research Chair Program, Montreal, Canada, Nov. 9-13.

Nov. 2008 External Academic Review Committee, Dept. of Civil and Environmental Engineering University of Michigan, Ann Arbor, Michigan

Jan. 2006 Biofluids review panel, CTS, NSF, Washington, DC, January 20 – 22 2006.

Nov. 2005 Modeling and Analysis of Biological Systems (MABS) Study Section, NIH Bethesda, Maryland, Oct. 31 – Nov. 1 2005.

Feb. 2003 Review panel for *Information Technology Research* program, NSF.

J. OTHER HONORS

March 2006 Fellow, Minnesota Supercomputing Institute

1991 R. T. DAVIS award for "demonstrated aptitude and scholarship in the field of computational mechanics," Department of Aerospace Engineering & Engineering Mechanics, University of Cincinnati

1987-1990 Graduate studies scholarship from the Bodosakis Foundation, Athens, Greece

1986 Scholarship from the Greek Chamber of Engineers

ADVISING AND TEACHING

A. INDIVIDUAL STUDENT/RESEARCHER GUIDANCE

POST DOCTORAL ASSOCIATES

Current

Anvar Gilmanov (January 2012 – present)
Research: Fluid-structure interaction of soft tissues with applications to cardiovascular flows

Dennis Angelidis (December 2011 – present)
Research: Multi-resolution large-eddy simulation of offshore wind turbines and wave energy converters

Trung Le (December 2011 – present)
Research: Computational modeling of cardiovascular flows

Xialoei Yang (September 2010 – present)
Research: Large-eddy simulation of wind and hydrokinetic turbine arrays

Ali Khosronejad (May 2009 - present)
Research: LES modeling of river morphodynamics and scour

Past

Leonardo Chamorro (May 2010 – June 2013)
Research: Experimental investigation of wind and hydrokinetic turbines and farms
Current position: Assistant Professor, Department of Mechanical Engineering, University of Illinois at Urbana Champaign, Champaign, IL

Seokkoo Kang (September 2010 – January 2012)
Research: Large-eddy simulation of wind and hydrokinetic turbines
Current position: Assistant Professor, Civil and Environmental Engineering, Hanyang University, Seoul, South Korea

Iman Borazjani (July 2008 – October 2010)
Research: Fluid-structure interaction algorithms for aquatic swimming and cardiovascular flows
Current position: Assistant Professor, Department of Mechanical Engineering, University of Buffalo.

Ganesh Natarajan (May 2009 – May 2010)
Research: Adaptive mesh refinement algorithms for engineering and biological flows
Current position: Assistant professor, Department of Mechanical Engineering, IIT Guwahati, India

Suresh Behara (September 2008 – May 2010)
Research: Fluid-structure interaction algorithms for wind and hydrokinetic turbine flows
Current position: Project scientist, IIT Kanpur, India

Joongcheol Paik (2001 – 2008)
Research: Hybrid URANS/LES Modeling of Complex Turbulent Shear Flows
Current position: Assistant Professor, Department of Civil Engineering, Kangnung National

University, Korea

Mehran Parsheh (2007 – 2008)
Research: Experimental investigation of stream restoration flows
Current position: Senior Research Engineer, Aurora Biofuels, Alameda, CA

Seo Yoon Jung (2007 – 2008)
Supervised jointly with J. Gulliver
Started: Fall 2007
Research: Level Set Methods for Free-Surface Flows
Current position: Research associate, Imperial College, London, UK

Liang Ge (2005 – 2007)
Research: Numerical Simulation of Cardiovascular Flows
Current position: Assistant Professor, Department of Surgery, University of California San Francisco

Anvar Gilmanov (2002 – 2005)
Research: Numerical Simulation of Fluid/Structure Interaction in Biofluids Applications
Current position: Research Associate, St. Anthony Falls Laboratory, University of Minnesota.

S. Casey Jones (2000 – 2003)
Research: Computational Modeling of Environmental Flows; LES of free shear flows; Parallel Computing.
Current position: Independent consultant.

Yiannis Ventikos (1996 – 1999)
Research: Computational studies of swirling flows; Chaotic advection; Computational modeling of hydropower flows
Current position: Professor and Head, Department of Mechanical Engineering, University College London.

Ph.D. STUDENTS

In Progress

Daniel Foti
Starting semester: Fall 2013
Research: Uncertainty quantification in CFD simulations of wind farms
Department of Mechanical Engineering

Saurabh Chawdhary
Starting semester: Fall 2012
Research: LES of turbulent flows and bed morphodynamics in waterways with hydrokinetic turbine arrays
Department of Mechanical Engineering, University of Minnesota

Ming Li
Starting semester: Fall 2012
Research: Computational modeling of tissue valves
Department of Mechanical Engineering, University of Minnesota

Hajit Mohammad
Starting semester: Fall 2009
Research: LES of two-phase flows in hydraulic turbines
Department of Civil Engineering, University of Minnesota

Graduated (while at the University of Minnesota)

Antoni Calderer (co-advised with Lian Shen) - 2015
Research: Fluid-Structure Interaction Simulation of Complex Floating Structures and Waves
Department of Civil, Environmental and Geo-Engineering, University of Minnesota
Current position: Postdoctoral associate, University of Minnesota

Craig Hill (co-advised with Michele Guala) - 2015
Research: Interactions Between Channel Topography and Hydrokinetic Turbines: Sediment Transport, Turbine Performance, and Wake Characteristics
Department of Civil, Environmental and Geo-Engineering, University of Minnesota
Current position: Research associate, University of Minnesota

Aaron Boomsma - 2015
Research: Drag Reduction by Riblets & Sharkskin Denticles: A Numerical Study
Department of Mechanical Engineering, University of Minnesota
Current position: Research engineer, TSI, Minneapolis, MN

Trung Le - 2011
Research: A computational framework for simulating cardiovascular flows in patient-specific anatomies
Department of Civil Engineering, University of Minnesota
Current position: Postdoctoral Associate, SAFL, Univ. of Minnesota.

Seokkoo Kang -2010
Research: Numerical simulation of turbulence in streams with complex hydraulic structures
Department of Civil Engineering, University of Minnesota
Current position: Assistant Professor, Civil and Environmental Engineering, Hanyang University, Seoul, South Korea

Diane de Zelicourt (Co-advisor with A. Yoganathan) – 2010
Thesis Title: Pulsatile Fontan Hemodynamics and Patient-Specific Surgical Planning: A Numerical Investigation
School of Chemical Engineering, Georgia Tech
Current position: Research engineer, ETH, Zurich.

Helen Simon (Co-advisor with A. Yoganathan) – 2009
Thesis Title: Numerical Simulations of the Micro Flowfield in the Hinge Region of Bileaflet Mechanical Heart Valves
Current position: Research Engineer, Intel Labs, Seattle, WA

Iman Borazjani – 2008
Thesis title: Numerical Simulation of Fluid Structure Interaction Problems in Biological Flows.
Current position: Assistant Professor, Department of Mechanical Engineering, University of Buffalo.

Cristian Escauriaza – 2008
Thesis title: 3D Unsteady numerical Modeling of Clear Water Scour past Hydraulic Structures: Lagrangian and Eulerian Perspectives
Current position: Assistant Professor, Catholic University, Santiago, Chile

Graduated (while at Georgia Tech)

Tahirih C. Lackey (1999 – 2004)
Thesis title: Numerical Investigation of Chaotic Advection in Three-Dimensional Experimentally Realizable Rotating Flows
Current position: Research Engineer, Waterways Experiment Station, USACOE, Vicksburg, MS.

Liang Ge (2000 – 2004)
Thesis title: Numerical Simulation of 3D, Complex, Turbulent Flows with Unsteady Coherent Structures: From Hydraulics to Cardiovascular Fluid Mechanics
Current position: Assistant Professor, Department of Surgery, University of California San Francisco

Hansong Tang (1998 – 2001)
Thesis: Numerical Simulation of 3D Unsteady Incompressible Flows in Complex Geometries
Current position: Associate Professor (tenured), Civil Engineering, City University of New York.

S. Casey Jones (1995 – 1999)
Co-advisor with A. Amirtharajah
Thesis: Static Mixers in Water Treatment: A Computational Fluid Dynamics Model

Graduated (at the Iowa Institute of Hydraulic Research, Univ. of Iowa)

V. Neary (1992 – 1995)
Co-advisor with A. J. Odgaard
Research: Numerical Modeling of Diversion Flows
Current Position: Hydroscience Research Engineer, Ecohydraulics Environmental Sciences Division, Oak Ridge National Laboratory, Oak Ridge, TN.

S. K. Sinha (1992 – 1995)
Co-advisor with A. J. Odgaard
Research: 3-D Numerical Model for Turbulent Flows through Natural River Reaches
Current Position: Vice President, Environmental Consulting & Technology, Inc., Detroit, MI.

F. B. Lin (1992 – 1996)
Co-advisor with A. J. Odgaard and V. C. Patel
Research: Development of a Numerical Method for 3-D Incompressible Flow with Multigrid Acceleration and Near-Wall Turbulence Closures
Current Position: Senior Hydraulic Engineer, Northwest Hydraulic Consultants, Seattle, WA.

M.S. STUDENTS

Kevin Stewart (2001 – 2002)
Research: Numerical Simulation of Selective Withdrawal in Stably Stratified Flows
Current Position: Research Engineer, Tennessee Valley Authority, Norris, TN.

B. CLASSROOM INSTRUCTION

UNIVERSITY OF MINNESOTA

CE 3052: Fluid Mechanics (Spring 2009)

CE 8572: Computational Environmental Fluid Dynamics (Fall 2006, Spring 2008, 2011, 2012, 2013, 2015).

EE 5940: Wind Energy Essentials (Fall 2010, 2011, 2012). Developed and co-organized along with Prof. Ned Mohan (EEC) this new college-wide course on wind energy. The objective of this course is to familiarize students with various essential aspects in harnessing wind energy and its conversion and delivery as electricity. It consists of a series of seminars offered by various speakers.

GEORGIA INSTITUTE OF TECHNOLOGY

CE 3053, 3063, and 3040: Introduction to Fluid Mechanics (taught this class at least once a year in the period 1996-2005).

CE 8113, CE/ME 8802: Computational Fluid Dynamics (developed and taught this class on average once a year 1996-2005).

CE 6251: Intermediate Fluid Mechanics (Fall 2000 and 2002).

CE 8802C: Introduction to Turbulence Modeling for CFD (Spring 2002)

A. PROFESSIONAL CONTRIBUTIONS AND CONSULTING

Membership in Professional Societies

- American Geophysical Union (AGU)
- American Physical Society (APS), Division of Fluid Dynamics (DFD)
- American Society of Civil Engineers(ASCE)
- American Society of Mechanical Engineers (ASME)

Organization and Chairmanship of Conferences, Technical Sessions, and Workshops

1. Advisory/scientific board, *2nd International Conference on CFD in Medicine & Biology* - Algarve, Portugal August 29-Sept 4, 2015.
2. Co-organizer of invited session in "*Coupled Problems in Free Surface Flows*," VI International Conference on Computational Methods for Coupled Problems in Science and Engineering (COUPLED 2015), Venice, Italy, May 18-25, 2015.
3. Scientific committee, VI International Conference on Computational Methods for Coupled Problems in Science and Engineering (COUPLED 2015), Venice, Italy, May 18-25, 2015.
4. Advisory/scientific board, 8th International Bio-Fluid Symposium and Workshop, Caltech, Pasadena, CA, March 20-22, 2015.
5. Organizing committee, Dept. of Energy Workshop on *Wind Plant Physics and Modeling*, Washington DC, Feb. 24-25, 2015.
6. Scientific committee, V International Conference on Computational Methods for *Coupled Problems in Science and Engineering* (COUPLED 2013), Ibiza, Spain, June 17- 19, 2013.
7. Co-organizer of the 5th Biennial Conference on Heart Valve Biology and Tissue Engineering, Mykonos Island, Greece, May 18-20, 2012.
8. Co-organizer of NSF workshop on "*Basic research at the intersection of marine/hydrokinetic energy and the aquatic environment,"* SAFL, University of Minnesota, October 2011.
9. Organizer of mini-symposium on the *Coupled Problems in Biomimetics*, ECCOMAS IV International Conference on Coupled Problems in Science and Engineering, Kos island, Greece, June 2011.
10. Organizer of a one-day symposium on *Wind Energy Research* as part of the E3 conference organized by the University of Minnesota Initiative for Renewable Energy and the Environment, Dec. 1, 2010.
11. Organizer of mini-symposium on the *Importance of Turbulence for Fish Habitats*, *8th International Symposium on Eco-Hydraulics*, Seoul, S. Korea, September 12-16 2010.
12. Local organizing committee of the 62st APS/DFD meeting (11/09), Minneapolis, MN.
13. Coordinator of the Gallery of Fluid Motion, 62st APS/DFD meeting (11/09), Minneapolis, MN.
14. Organizer of session on *Cardiovascular Fluid Mechanics*, *Inaugural Conference of ASCE Institute on Engineering Mechanics (EM-08),* Minneapolis, MN, May 18-21, 2008.
15. Local organizing committee, *Inaugural Conference of ASCE Institute on Engineering Mechanics (EM-08),* Minneapolis, MN, May 18-21, 2008.
16. Advisory committee member, 5th *International Symposium on Turbulence and Shear Flow Phenomena* (TSFP-5), 2007.
17. Advisory committee member, 4rd *International Symposium on Turbulence and Shear Flow Phenomena* (TSFP-4), Williamsburg, Virginia, June 2005.
18. Session co-chair, Multi-scale Modeling in the Cardiovascular Systems, BMES 2004, Cardiovascular Engineering Track, Philadelphia, Pennsylvania, October 2004.
19. Session chair, IAHR Symposium on Hydraulic Machinery and Systems, Stockholm, Sweden, June 2004.

20. Session co-chairman, *3rd International Symposium on Turbulence and Shear Flow Phenomena* (TSFP-3), Session: Turbulence Control I, Sendai, Japan, June 2003.
21. Session chairman, *55th Annual Meeting of the APS Division of Fluid Dynamics*, Session Title: Biofluids II, Dallas, TX, November 2002.
22. Session chairman and co-organizer, *4th Bio-Engineering Symposium*, American Fisheries Society, Session Title: CFD Modeling for Fish Friendly Hydraulic Structures, Baltimore, August 2002.
23. Session co-chairman, *6th Annual Hilton Head Workshop on Prosthetic Heart Valves*, Session title: *Computational Modeling I*, Hilton Head Island, SC, March 6-10, 2002.
24. Advisory committee member, 3rd *International Symposium on Turbulence and Shear Flow Phenomena* (TSFP-3), Sendai, Japan, June 2003.
25. Advisory committee member, *2nd International Symposium on Turbulence and Shear Flow Phenomena* (TSFP-2), Stockholm, Sweden, June 2001.
26. Organizing committee co-chairman, *20th IAHR Symposium on Hydraulic Machinery and Systems*, Charlotte, North Carolina, August 2000.
27. Session chairman, *ASCE Waterpower 97*, Session: CFD for Turbine Rehabilitation and Design, Atlanta, Georgia, August 1997.
28. Session chairman, *1996 ASME Fluids Engineering Division Summer Meeting*, Session: Numerical Developments in CFD III, San Diego, CA 1996.

Technical Committee Activities

- Founder and Chair of a new ASCE-EWRI task committee on *Advanced Environmental Hydraulics Modeling* – 2000-2005.

- Member of the ASCE-EWRI technical committee on *Eco-hydraulics (*2003 – 2006).

External Examiner/Reader for Ph.D. Thesis Exams

- Jury member for the Ph.D. thesis of M. Reclari, Department of Mechanical Engineering, EPFL, Switzerland, April 16, 2013.

- Co-referee of the Ph.D. thesis of M. Gazzola, Department of Mechanical and Process Engineering, ETH-Zurich, Zurich, Switzerland, September 10, 2012.

- Examiner of the Ph.D. thesis of M. G. Doyle, Department of Mechanical Engineering, University of Ottawa, Ottawa, Canada, August 2011.

- Reader of the thesis of Dr. Wonjung Yang, Dept. of Civil Engineering, Yonsei University, Seoul, south Korea, January 2009.

- Examiner in Dr. Alexander Perrig's defense, Laboratory for Hydraulic Machinery, École Polytechnique Fédéral de Lausanne, Lausanne, Switzerland, Dec. 12, 2006.

- Examiner in Dr. J. Qu's defense, Dept. of Building, Civil & Environmental Engineering, Concordia University, Montreal, Canada, May 20, 2005.

- Reader of the thesis of Dr. I. Avrahami, Dept. of Biomedical Engineering, Tel Aviv University, Tel Aviv, Israel, 2004.

Technical Journal Referee

Proceedings of the Royal Society (since 2010); Annals of Biomedical Engineering (since 2005); American Institute of Aeronautics and Astronautics (AIAA) Journal (since 1992); ASCE Journal of Hydraulic Engineering (since 1995); ASCE Journal of Engineering Mechanics (since 2002); ASME Journal of Biomechanical Engineering (since 2003); ASME Journal of Fluids Engineering (since 1993); Computers and Fluids (since 1991); International Journal of Heat and Fluid Flow (since 1997); International Journal of Numerical Methods in Fluids (since 1992); Journal of Fluid Mechanics (since 1998); Journal of Computational Physics (since 1999); Paleobiology (since 2003); Physics of Fluids (since 2002); Water Resources Research (since 2007)

Proposal Reviewer

National Science Foundation, National Institutes of Health, US Department of Energy, Switzerland National Science Foundation

Consulting

- *Oppenheinmer, Wolff & Donnelly LLP*, expert witness consulting, 2014.
- *HDR Engineering Inc*., consultant for computational modeling of hydraulic structures, 2014.
- *WREM International*, 1D and 2D hydrodynamic modeling of the Lake Victoria basin, 2003 – 2007.
- *Battelle Seattle Research Center* Numerical Modeling of Selective Withdrawal in the lake Billy Chinook Reservoir, 2003 - 2006.
- *MW Harza*, Numerical modeling of selective withdrawal in the intakes of the Jardine water treatment plant, Chicago, IL (2000 – 2004).

B. CAMPUS SERVICE

University of Minnesota

- Member of the UMN Grand Challenges Research strategic planning task force (2014 -)
- Member of the UMN President's Outstanding Service Awards Committee (2014 -)
- Member of the UMN All-University Honors Committee (2011 – present)
- Co-chair of the Research Subcommittee of the Twin Cities UMN Campus Sustainability Committee (Fall 2010)
- Member of the Mechanical Engineering department Strategic Planning Task Force (Spring 2009).
- Chair of the Lorenz G. Straub Award committee, St. Anthony Falls Laboratory (Sept. 2008 – present)
- Member of the Minnesota Supercomputing Institute advisory and procurement committees (2007 – 2010).
- Elected member of the Dept. of Civil Engineering Planning Council (2006 – 2008)
- Chaired the ad-hoc search committee for the position of head of the Civil Engineering (March – April, 2007).
- Served on the Provost's advisory committee for the planning of the *Institute for the Advancement of Science and Technology* (spring 2007)

Georgia Institute of Technology

- College of Engineering Assistant-to-Associate Reappointment, Promotion and Tenure Committee (2004 – 2005).
- Elected member of CEE Statutory Advisory Committee (2004 – 2005)

- Chair of CEE *Information Systems* Committee (Sept. 2001 – Dec. 2003)
- Member of *ad-hoc CEE Faculty Search Committee* for the EFMWR group (Feb. 2003 – April 2003)
- Member of *ad-hoc CEE Faculty Search Committee* (Jan. 2002 – March 2002)
- Member of *ad-hoc CEE Faculty Search Committee* for the Geosystems group search (Jan. 2001 – April 2001)
- Member of the CEE *Computer Committee* (Sept. 97 – Aug. 2001)
- Member of the ad-hoc CEE Committee for the "Computational Modeling in CEE" course (Jan. 97- Sept. 99)
- Member of the CEE *Awards Committee* (Jan. 97 – May 97)
- Member of various campus-wide committees for evaluating five "*Best Intellectual Products*" of faculty from Aerospace, Chemical, and Civil and Envir. Engineering applying for promotion and tenure (Fall 1997 – present).