

# ANTONINO FERRANTE

## *Curriculum Vitae*

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## EDUCATIONAL HISTORY

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### **University of California, Irvine, CA**

Ph.D. in Mechanical and Aerospace Engineering

February 2004

Dissertation: Reduction of skin-friction in a microbubble-laden spatially developing turbulent boundary layer over a flat plate

### **von Kármán Institute for Fluid Dynamics, Rhode-St-Genèse, Belgium**

M.S. in Aeronautics and Aerospace (with honors)

June 1997

Thesis: Solution of the unsteady Euler equations using residual distribution and flux corrected transport

### **Università di Napoli 'Federico II', Napoli, Italy**

Laurea in Ingegneria Aeronautica (summa cum laude)

July 1996

Thesis: On the theoretical prediction of airfoils buffeting phenomenon

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## EMPLOYMENT HISTORY

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**University of Washington** 2015-Present  
Seattle, WA  
Associate Professor, Aeronautics & Astronautics

**University of Washington** 2009-2015  
Seattle, WA  
Assistant Professor, Aeronautics & Astronautics

**California Institute of Technology** 3/2007-6/2009  
Pasadena, CA  
Postdoctoral Scholar, Graduate Aeronautical Laboratories (GALCIT)

**University of California, Irvine** 3/2004-2/2007  
Irvine, CA  
Postdoctoral Scholar, Mechanical & Aerospace Engineering

**University of California, Irvine** 9/1998-2/2004  
Irvine, CA  
Graduate Research Assistant, Mechanical & Aerospace Engineering

**Università di Napoli ‘Federico II’** 8/1997-8/1998  
Napoli, Italy  
Research Assistant, Aeronautics

**von Kármán Institute for Fluid Dynamics** 9/1996-6/1997  
Rhode-St-Genese, Belgium  
Graduate Research Assistant, Aeronautics & Aerospace

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## AWARDS AND HONORS

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**AIAA Associate Fellow**, 2022, American Institute of Aeronautics & Astronautics

**Faculty Appreciation for Career Education & Training (FACET) Award**, 2020, CoE, UW

**ICTAM Travel Fellowship Grant Award**, 2012, U.S. National Academies of Science (NAS)

**Royalty Research Fund Award**, 2012, University of Washington (UW)

**NSF CAREER Award**, 2011, National Science Foundation (Office of CyberInfrastructure, Fluid Dynamics, Particulate and Multiphase Processes)

**Capability Application Project on IBM Power4+**, 2004, High-Performance Computing Modernization Program, Department of Defense (HPCMP/DoD)

**Gallery of Fluid Motion, Video Entry Award**, 2003, American Physical Society, Division of Fluid Dynamics (APS-DFD)

**Dissertation Fellowship Award**, 2003, Henry Samueli School of Engineering, University of California, Irvine

**Study Abroad Fellowship Award**, 1998, Università di Napoli ‘Federico II’, Italy

**Belgian Government Prize & Diploma with Honors**, 1997, von Kármán Institute for Fluid Dynamics, Belgium

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## AFFILIATIONS AND OTHER APPOINTMENTS

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**University of Washington, Seattle** 6/2020 – Present  
Adjunct Associate Professor, Applied Mathematics

**University of Washington, Seattle** 6/2020 – Present  
Affiliate, eScience Institute

**Stanford University** Winter 2019  
Palo Alto, CA  
Visiting Professor, Center for Turbulence Research

**University of Washington, Seattle** 8/2008– 6/2009  
Affiliate Assistant Professor, Aeronautics & Astronautics

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PUBLICATIONS<sup>1</sup>

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**Refereed Journal Articles**

- J20. Freund A. & Ferrante A.  
"Large-eddy simulation of droplet-laden decaying isotropic turbulence using artificial neural networks"  
*International Journal of Multiphase Flows*, Vol. 142, pp. 1-25 (2021)
- J19. Dodd M., Khorassani D.M., Ferrante A. & Ihme M.  
"Analysis of droplet evaporation in isotropic turbulence through droplet-resolved DNS"  
*International Journal of Heat & Mass Transfer*, Vol. 172, pp. 1-10 (2021)
- J18. Lu D., Aithal A. & Ferrante A.  
"Law of incipient separation over curved ramps as inferred by Reynolds-Averaged Navier-Stokes"  
*AIAA Journal*, Vol. 59, No. 1, pp. 196-214 (2021)
- J17. Aithal A. & Ferrante A.  
"A fast pressure-correction method for incompressible flows over curved walls"  
*Journal of Computational Physics*, Vol. 421, pp. 1-28 (2020)
- J16. Freund A. & Ferrante A.  
"Wavelet-spectral analysis of droplet-laden isotropic turbulence"  
*Journal of Fluid Mechanics*, Vol. 875, pp. 914-928 (2019)
- J15. Dodd M. & Ferrante A.  
"On the interaction of Taylor lengthscale size droplets and isotropic turbulence"  
*Journal of Fluid Mechanics*, Vol. 806, pp. 356-412 (2016)  
Featured article of "Droplets in turbulence: a new perspective" by Prof. M. Maxey in  
*Focus on Fluids of J. Fluid Mechanics*, Vol. 816 (2017)
- J14. Dodd M. & Ferrante A.  
"A fast pressure-correction method for incompressible two-fluid flows"  
*Journal of Computational Physics*, Vol. 273, pp. 416-434 (2014)
- J13. Baraldi A., Dodd M. & Ferrante A.  
"A mass-conserving volume-of-fluid method: volume tracking and droplet surface-tension in isotropic turbulence"  
*Computers and Fluids*, Vol. 96, pp. 322-337 (2014)  
Invited paper for the Special Issue of Computers & Fluids from the  
*7th International Conference of Computational Fluid Dynamics (2012)*
- J12. Lucci F., L'Vov V., Ferrante A., Rosso M. & Elghobashi S.  
"Eulerian-Lagrangian bridge for the energy and dissipation spectra in isotropic turbulence"  
*Theoretical and Computational Fluid Dynamics*, Vol.28, pp.197-213 (2014)

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<sup>1</sup> [Google Scholar Citations of A. Ferrante](#)

- J11. Lucci F., Ferrante A. & Elghobashi S.  
"Is Stokes number an appropriate indicator for turbulence modulation by particles of Taylor-length-scale size?"  
*Physics of Fluids*, Vol. 23, 025101, pp. 1-7 (2011)
- J10. Ferrante A., Matheou G. & Dimotakis P.E.  
"LES of an inclined sonic jet into a supersonic turbulent crossflow at Mach 3.6"  
*Journal of Turbulence*, Vol. 12, n. 2, pp. 1-32 (2011)
- J09. Lucci F., Ferrante A. & Elghobashi S.  
"Modulation of isotropic turbulence by particles of Taylor-lengthscale size"  
*Journal of Fluid Mechanics*, Vol. 650, pp. 5-55 (2010)  
Featured article in "*Focus on Fluids*" of J. Fluid Mechanics (May 2010)
- J08. L'vov V.S., Pomyalov A., Ferrante A. & Elghobashi S.  
"Analytical model for temporally-developing turbulent boundary layers"  
*J. of Experimental and Theoretical Physics Letters*, Vol. 86, pp.102-107 (2007)
- J07. Ferrante A. & Elghobashi S.  
"On the accuracy of the two-fluid formulation in DNS of bubble-laden turbulent boundary layers"  
*Physics of Fluids*, Vol.19, 045105, pp.1-8 (2007)
- J06. Ferrante A. & Elghobashi S.  
"On the effects of microbubbles on the Taylor-Green vortex flow"  
*Journal of Fluid Mechanics*, Vol.572, pp.145-177 (2007)
- J05. Ferrante A. & Elghobashi S.  
"Reynolds number effect on drag reduction in a microbubble-laden spatially developing turbulent boundary layer"  
*Journal of Fluid Mechanics*, Vol.543, pp.93-106 (2005)
- J04. Ferrante A., Elghobashi S., Adams P., Valenciano M., Longmire D.  
"Evolution of Quasi-Streamwise Vortex Tubes and Wall-Streaks in a Bubble-Laden Turbulent Boundary Layer over a Flat Plate"  
*Physics of Fluids*, Vol. 16, n. 9, S2 (2004)
- J03. Ferrante A. & Elghobashi S.  
"On the physical mechanisms of drag reduction in a spatially developing turbulent boundary layer laden with microbubbles"  
*Journal of Fluid Mechanics*, Vol. 503, pp. 345-355 (2004)
- J02. Ferrante A. & Elghobashi S.  
"A robust method for generating inflow conditions for direct simulations of spatially developing turbulent boundary layers"  
*Journal of Computational Physics*, Vol. 198, pp. 372-387 (2004)
- J01. Ferrante A. & Elghobashi S.  
"On the physical mechanisms of two-way coupling in particle-laden isotropic turbulence"  
*Physics of Fluids*, Vol. 15, n. 2, pp. 315-329 (2003)

**Conference proceedings and other non-journal articles**

a) ***Fully refereed publications***

- CP15. Dodd M. & Ferrante A. (2016)  
"Effects of viscosity ratio on droplet-laden isotropic turbulence"  
***24th International Congress of Theoretical and Applied Mechanics (ICTAM)***  
*Montreal, Canada, August 21-26, 2016*
- CP14. Adams D., Dodd M. & Ferrante A. (2016)  
"Petascale DNS using the fast Poisson solver PSH3D"  
***24th International Congress of Theoretical and Applied Mechanics (ICTAM)***  
*Montreal, Canada August 21-26, 2016*
- CP13. Adams D., Dodd M. & Ferrante A.  
"PSH3D: PetaScale Solver of the Helmholtz Equation in 3D"  
***27th International Conference on Parallel Computational Fluid Dynamics (PCFD)***  
*Montreal, Canada, May 17-20, 2015*
- CP12. Dodd M. & Ferrante A.  
"A fast pressure-correction method for incompressible two-fluid flows"  
***2nd International Conference on Numerical Methods in Multiphase Flows (ICNMMF)***  
*Darmstadt, Germany, June 30 – July 2, 2014*
- CP11. Dodd M. & Ferrante A.  
"Modulation of isotropic turbulence by deformable droplets of Taylor length-scale size"  
***17th U.S. National Congress on Theoretical & Applied Mechanics***  
*Michigan State University, East Lansing, Michigan, June 15-20, 2014*
- CP10. Dodd M. & Ferrante A.  
"Effects of gravity on particle dispersion in a spatially developing turbulent boundary layer"  
***17th U.S. National Congress on Theoretical & Applied Mechanics***  
*Michigan State University, East Lansing, Michigan, June 15-20, 2014*
- CP09. Dodd M. & Ferrante A.  
"Direct numerical simulation of particle dispersion in a spatially developing turbulent boundary layer"  
***8th International Conference on Multiphase Flow (ICMF 2013)***  
*Jeju, Korea, May 26-31, 2013*
- CP08. Dodd M. & Ferrante A.  
"A coupled pressure-correction/volume of fluid method for DNS of droplet-laden isotropic turbulence"  
***8th International Conference on Multiphase Flow (ICMF 2013)***  
*Jeju, Korea, May 26-31, 2013*
- CP07. Baraldi A. & Ferrante A.  
"DNS of fully-resolved droplet-laden isotropic turbulence: a mass-conserving volume of fluid method"  
***23rd International Congress of Theoretical and Applied Mechanics (ICTAM 2012)***  
*Beijing, China, August 19-24, 2012*

- CP06. Baraldi A. & Ferrante A.  
"A mass-conserving volume of fluid method for fully-resolved DNS of droplet-laden isotropic turbulence"  
***1st International Conference on Numerical Methods in Multiphase Flows (2012)***  
*Pennsylvania State University, June 12-14, 2012*
- CP05. Lucci F., Ferrante A. & Elghobashi S.  
"Turbulence modulation by particles of the Taylor-lengthscale size: is Stokes number an appropriate indicator?"  
***7th International Conference on Multiphase Flow (ICMF 2010)***  
*Tampa, Florida, May 30 - June 4, 2010*
- CP04. Ferrante A. & Elghobashi S.  
"On the effects of finite-size particles on decaying isotropic turbulence"  
***6th International Conference on Multiphase Flow (ICMF 2007)***  
*Leipzig, Germany, July 9-13, 2007*
- CP03. Ferrante A. & Elghobashi S.  
"Drag reduction in a microbubble-laden turbulent boundary layer: DNS using the two-fluid approach"  
***26th Symposium on Naval Hydrodynamics***  
*Rome, Italy, September 17-22, 2006*
- CP02. Ferrante A. & Elghobashi S.  
"Reynolds number effects on drag reduction in a bubble-laden spatially developing turbulent boundary layer over a flat plate"  
***2nd International Symposium on Seawater Drag Reduction (ISSDR)***  
*Busan, Korea, May 23-26, 2005*
- CP01. Elghobashi S. & Ferrante A.  
"On the physical mechanisms of drag reduction in a microbubble-laden turbulent boundary layer"  
***5th International Conference on Multiphase Flows (ICMF 2004)***  
*Yokohama, Japan, May 31-June 3, 2004*

***b) Conference papers refereed by abstract only***

- CA12. Williams O., Samuell M., Robbins M. & Ferrante A.  
"Characterization of separated flowfield over Gaussian speed-bump CFD validation geometry"  
***AIAA Scitech Forum 2021, AIAA Paper 2021-1671***  
*Virtual Format, January 19-21, 2021*
- CA11. Aithal A. & Ferrante A.  
"Direct numerical simulation of a turbulent boundary layer separating over a curved wall using FastRK3"  
***11th International Conference on Computational Fluid Dynamics (ICCFD)***  
*Maui, Hawaii, July 13-17, 2020 (Submitted)*
- CA10. Lu D., Aithal A. & Ferrante A.  
"The law of incipient separation for turbulent flows as inferred by RANS"  
***11th International Conference on Computational Fluid Dynamics (ICCFD)***  
*Maui, Hawaii, July 13-17, 2020 (Submitted)*

- CA09. Trefftz-Posada P. & Ferrante A.  
"On the interaction of Taylor lengthscale droplets with homogeneous shear-turbulence"  
***11th International Conference on Computational Fluid Dynamics (ICCFD)***  
*Maui, Hawaii, July 13-17, 2020 (Submitted)*
- CA08. Williams O., Samuelli M., Sarwas S., Robbins M. & Ferrante A.  
"Experimental study of a CFD validation test case for turbulent separated flows"  
***AIAA Scitech Forum 2020, AIAA Paper 2020-0092***  
*Orlando, Florida, January 6-10, 2020*
- CA07. Ferrante A. & Dodd M.  
"A mass-conserving volume-of-fluid method for incompressible gas-liquid flows with phase change"  
***10th International Conference on Multiphase Flow (ICMF)***  
*Rio de Janeiro, Brazil, May 19 - 24, 2019*
- CA06. Dodd M. & Ferrante A.  
"DNS of evaporating droplets in decaying isotropic turbulence"  
***9th International Conference on Multiphase Flow (ICMF)***  
*Firenze, Italy, May 22 - 27, 2016*
- CA05. Baraldi A. & Ferrante A.  
"A VoF method for DNS of droplet-laden incompressible turbulence"  
***7th International Conference on Computational Fluid Dynamics (ICCFD)***  
*Big Island, Hawaii, July 9-13, 2012*  
Selected paper for a Special Issue of *Computers & Fluids* (refereed journal)
- CA04. Dodd M., Webster K. & Ferrante A.  
"DNS of particle dispersion in a spatially developing turbulent boundary layer"  
***7th International Conference on Computational Fluid Dynamics (ICCFD)***  
*Big Island, Hawaii, July 9-13, 2012*
- CA03. Ferrante A. & Baraldi A.  
"A mass-conserving volume of fluid method for DNS of two-phase incompressible isotropic turbulence"  
***20th AIAA Computational Fluid Dynamics Conference***  
*Honolulu, Hawaii, June 27-30, 2011*
- CA02. Ferrante A., Matheou G. & Dimotakis P.E.  
"LES of an inclined jet into a supersonic turbulent crossflow: synthetic inflow conditions"  
***48th AIAA Aerospace Science Meeting, AIAA Paper 2010-1287***  
*Orlando, Florida, January 4-7, 2010*
- CA01. Ferrante A., Pantano C., Matheou G. & Dimotakis P.E.  
"On the effects of the upstream conditions on the transition of an inclined jet into a supersonic cross-flow"  
***47th AIAA Aerospace Science Meeting, AIAA Paper 2009-1511***  
*Orlando, Florida, January 5-8, 2009*

**Abstracts, letters, non-refereed papers, technical reports**

**a) Abstract-only**

- A66. Aithal A. & Ferrante, A.  
"Reynolds stress budgets in orthogonal curvilinear coordinates for a turbulent flow over a curved ramp via DNS"  
***74th American Physical Society Meeting, Division of Fluid Dynamics***  
*Phoenix, AZ, November 2021*
- A65. Tipirneni M., Aithal A. & Ferrante, A.  
"Temporal accuracy of FastRK3"  
***74th American Physical Society Meeting, Division of Fluid Dynamics***  
*Phoenix, AZ, November 2021*
- A64. Huang S., Aithal A. & Ferrante, A.  
"Law of incipient separation for turbulent flows over airfoils as inferred by RANS"  
***74th American Physical Society Meeting, Division of Fluid Dynamics***  
*Phoenix, AZ, November 2021*
- A63. Trefftz-Posada P. & Ferrante, A.  
"Dynamics of turbulence kinetic energy in droplet-laden homogeneous shear turbulence"  
***74th American Physical Society Meeting, Division of Fluid Dynamics***  
*Phoenix, AZ, November 2021*
- A62. Aithal A. & Ferrante, A.  
"Direct numerical simulation of a turbulent flow over a curved ramp using FastRK3"  
***73rd American Physical Society Meeting, Division of Fluid Dynamics***  
*Chicago, IL, November 2020*
- A61. Freund A. & Ferrante, A.  
"LES of droplet-laden isotropic turbulence using artificial neural networks"  
***73rd American Physical Society Meeting, Division of Fluid Dynamics***  
*Chicago, IL, November 2020*
- A60. Robbins M., Samuell M., Ferrante A. & Williams O.  
"Large-field PIV measurements of turbulent separation zone of Gaussian Bump validation geometry"  
***73rd American Physical Society Meeting, Division of Fluid Dynamics***  
*Chicago, IL, November 2020*
- A59. Ferrante, A. & Trefftz-Posada, P.  
"Effects of droplet deformation and breakup/coalescence on turbulence kinetic energy"  
***72nd American Physical Society Meeting, Division of Fluid Dynamics***  
*Seattle, WA, November 2019*
- A58. Freund, A. & Ferrante, A.  
"Wavelet-spectral analysis of droplet-laden isotropic turbulence"  
***72nd American Physical Society Meeting, Division of Fluid Dynamics***  
*Seattle, WA, November 2019*



- A57. Trefftz-Posada, P. & Ferrante, A.  
"Direct numerical simulation of droplet-laden homogeneous shear turbulence"  
***72nd American Physical Society Meeting, Division of Fluid Dynamics***  
*Seattle, WA, November 2019*
- A56. Lu, D., Aithal, A. & Ferrante, A.  
"The law of incipient separation for turbulent flows as inferred by RANS"  
***72nd American Physical Society Meeting, Division of Fluid Dynamics***  
*Seattle, WA, November 2019*
- A55. Aithal, A. & Ferrante, A.  
"Direct numerical simulation of turbulent flows over curved walls with adverse pressure gradient"  
***72nd American Physical Society Meeting, Division of Fluid Dynamics***  
*Seattle, WA, November 2019*
- A54. Samuel, M. , Williams, O. & Ferrante, A.  
"RANS simulations of a turbulent separated flow validation test-case"  
***72nd American Physical Society Meeting, Division of Fluid Dynamics***  
*Seattle, WA, November 2019*
- A53. Aithal, A. & Ferrante, A.  
"A fast pressure-correction method for incompressible flows over curved surfaces"  
***71st American Physical Society Meeting, Division of Fluid Dynamics***  
*Atlanta, GA, November 2018*
- A52. Freund, A. & Ferrante, A.  
"Decomposing the wavelet spectrum of droplet-laden isotropic turbulence"  
***71st American Physical Society Meeting, Division of Fluid Dynamics***  
*Atlanta, GA, November 2018*
- A51. Trefftz-Posada, P. & Ferrante, A.  
"On the interaction of homogeneous shear turbulence and droplets of Taylor length-scale size"  
***71st American Physical Society Meeting, Division of Fluid Dynamics***  
*Atlanta, GA, November 2018*
- A50. Ferrante, A. & Dodd, M.  
"Towards a mass-conserving volume-of-fluid method for incompressible gas-liquid flows with phase change"  
***71st American Physical Society Meeting, Division of Fluid Dynamics***  
*Atlanta, GA, November 2018*
- A49. Aithal, A. & Ferrante, A.  
"Fast pressure-correction method for incompressible Navier-Stokes equations in curvilinear coordinates"  
***70th American Physical Society Meeting, Division of Fluid Dynamics***  
*Denver, CO, November 19-21, 2017*

- A48. Ferrante, A. & Dodd, M.  
"Effects of droplet size on droplet evaporation rate in isotropic turbulence"  
**70th American Physical Society Meeting, Division of Fluid Dynamics**  
Denver, CO, November 19-21, 2017
- A47. Dodd, M. & Ferrante, A.  
"A combined volume-of-fluid method and low-Mach-number approach for DNS of evaporating droplets in turbulence"  
**70th American Physical Society Meeting, Division of Fluid Dynamics**  
Denver, CO, November 19-21, 2017
- A46. Freund, A. & Ferrante, A.  
"Wavelet energy spectra of multiphase flows"  
**70th American Physical Society Meeting, Division of Fluid Dynamics**  
Denver, CO, November 19-21, 2017
- A45. Dodd M., Hedges T. & Ferrante A.<sup>2</sup>  
"Droplet evaporation in a turbulent flow"  
**70th American Physical Society Meeting, Division of Fluid Dynamics**  
Video entry to the Gallery of Fluid Motion  
Denver, CO, November 19-21, 2017
- A44. Dodd M. & Ferrante A.  
"On the effects of isotropic turbulence on the evaporation rate of a liquid droplet"  
**69th American Physical Society Meeting, Division of Fluid Dynamics**  
Portland, OR, November 20-22, 2016
- A43. Ferrante A. & Dodd, M.  
"On the effects of density ratio on droplet-laden isotropic turbulence"  
**69th American Physical Society Meeting, Division of Fluid Dynamics**  
Portland, OR, November 20-22, 2016
- A42. Adams D., Dodd M. & Ferrante, A.  
"PSH3D fast Poisson solver for petascale DNS"  
**69th American Physical Society Meeting, Division of Fluid Dynamics**  
Portland, OR, November 20-22, 2016
- A41. Uyeda C.M., Kurosaka M. & Ferrante A.  
"On the quasi-one dimensional structure of the cellular detonation in a two-dimensional duct"  
**68th American Physical Society Meeting, Division of Fluid Dynamics**  
Boston, MA, November 22-24, 2015
- A40. Dodd M., Aleem M. & Ferrante A.<sup>3</sup>  
"Interaction of Taylor lengthscale size droplets and isotropic turbulence"  
**68th American Physical Society Meeting, Division of Fluid Dynamics**  
Video entry to the Gallery of Fluid Motion  
Boston, MA, November 22-24, 2015

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<sup>2</sup> <https://vimeo.com/238200190>

<sup>3</sup> <https://vimeo.com/142559292>

- A39. McCann B. & Ferrante A.  
"A Wall Model for Large-Eddy Simulation of Compressible Channel Flows"  
**67th American Physical Society Meeting, Division of Fluid Dynamics**  
*San Francisco, CA, November 23-25, 2014*
- A38. Dodd M. & Ferrante A.  
"Modulation of isotropic turbulence by deformable droplets of Taylor lengthscale size"  
**67th American Physical Society Meeting, Division of Fluid Dynamics**  
*San Francisco, CA, November 23-25, 2014*
- A37. Ferrante A. & Dodd M.  
"DNS of fully-resolved droplet-laden decaying isotropic turbulence"  
**66th American Physical Society Meeting, Division of Fluid Dynamics**  
*Pittsburgh, PA, November 24-27, 2013*
- A36. Dodd M. & Ferrante A.  
"An efficient pressure-correction method for incompressible multifluid flows"  
**66th American Physical Society Meeting, Division of Fluid Dynamics**  
*Pittsburgh, PA, November 24-27, 2013*
- A35. Bock D., Webster K. Adams D. & Ferrante A.  
"Visualization of vortical structures from DNS of spatially developing turbulent boundary layers"  
**XSEDE13 (Extreme Science and Discovery Environment)**  
*San Diego, CA, July 22-25, 2013*
- A34. Ferrante A. & Dodd M.  
"Direct numerical simulation of particle dispersion in a spatially developing turbulent boundary layer"  
**American Geophysical Union, Fall Meeting**  
*San Francisco, CA, December 3-7, 2012*
- A33. Dodd M., Webster K. & Ferrante A.  
"DNS of particle dispersion in a spatially developing turbulent boundary layer"  
**65th American Physical Society Meeting, Division of Fluid Dynamics**  
*San Diego, CA, November 18-21, 2012*
- A32. Ferrante A. & Dodd M.  
"A mass-conserving volume of fluid method for DNS of droplet-laden isotropic turbulence"  
**65th American Physical Society Meeting, Division of Fluid Dynamics**  
*San Diego, CA, November 18-21, 2012*
- A31. Baraldi A. & Ferrante A.  
"DNS of droplet-laden incompressible turbulence: surface tension in a VoF method"  
**64th American Physical Society Meeting, Division of Fluid Dynamics**  
*Baltimore, MD, November 20-22, 2011*
- A30. Lucci F., L'Vov V., Ferrante A. & Elghobashi S.  
"On the Lagrangian power spectrum of turbulence energy in isotropic turbulence"  
**64th American Physical Society Meeting, Division of Fluid Dynamics**  
*Baltimore, MD, November 20-22, 2011*

- A29. Amah E. & Ferrante A.  
"Flow simulation over a flat plate"  
**20th Annual National McNair Research Conference and Graduate Fair**  
Milwaukee, WI, November 11-13, 2011
- A28. Baraldi A. & Ferrante A.  
"A mass-conserving volume of fluid method for two-phase incompressible isotropic turbulence"  
**63rd American Physical Society Meeting, Division of Fluid Dynamics**  
Long Beach, CA, November 21-23, 2010
- A27. Ferrante A. & Webster K.  
"DNS of turbulent boundary layer over a flat plate at  $Re_0=5200$ "  
**63rd American Physical Society Meeting, Division of Fluid Dynamics**  
Long Beach, CA, November 21-23, 2010
- A26. Lucci F., Ferrante A. & Elghobashi S.  
"Is Stokes number an appropriate indicator for turbulence modulation by particles of Taylor-length-scale size?"  
**63rd American Physical Society Meeting, Division of Fluid Dynamics**  
Long Beach, CA, November 21-23, 2010
- A25. Ferrante A., Matheou G. & Dimotakis P.E.  
"LES of an inclined jet into a supersonic turbulent cross-flow: synthetic inflow conditions"  
**62nd American Physical Society Meeting, Division of Fluid Dynamics**  
Minneapolis MN, November 22-24, 2009
- A24. Lucci F., Ferrante A. & Elghobashi S.  
"On the effects of Taylor-lengthscale size particles on isotropic turbulence"  
**62nd American Physical Society Meeting, Division of Fluid Dynamics**  
Minneapolis MN, November 22-24, 2009
- A23. Ferrante A., Matheou G. & Dimotakis P.E.  
"LES of an inclined jet into a supersonic turbulent cross-flow: synthetic turbulent inflow conditions"  
**3rd Southern California Symposium on Flow Physics**  
University of California, San Diego, April 18, 2009
- A22. Lucci F., Elghobashi S. & Ferrante A.  
"Decaying isotropic turbulence laden with finite-size particles: frequency spectrum"  
**3rd Southern California Symposium on Flow Physics**  
University of California, San Diego, April 18, 2009
- A21. Ferrante A., Pantano C., Matheou G. & Dimotakis P.E.  
"LES of an inclined jet into a supersonic cross-flow at Mach 3.6"  
**61th American Physical Society Meeting, Division of Fluid Dynamics**  
San Antonio TX, November 23-25, 2008
- A20. Lucci F., Ferrante A. & Elghobashi S.  
"DNS of isotropic turbulence laden with fully-resolved finite-size particles"  
**61th American Physical Society Meeting, Division of Fluid Dynamics**  
San Antonio TX, November 23-25, 2008

- A19. Ferrante A., Pantano C., Matheou G. & Dimotakis P.E.  
"On the effects of the upstream conditions on the transition of an inclined jet into a supersonic cross-flow"  
**2nd Southern California Symposium on Flow Physics**  
*University of California, Los Angeles, April 12, 2008*
- A18. Lucci F., Elghobashi S. & Ferrante A.  
"DNS of isotropic turbulence laden with fully-resolved finite-size particles"  
**2nd Southern California Symposium on Flow Physics**  
*University of California, Los Angeles, April 12, 2008*
- A17. Elghobashi S. & Ferrante A.  
"Fully resolved DNS of freely moving finite-size particles in decaying isotropic turbulence"  
**60th American Physical Society Meeting, Division of Fluid Dynamics**  
*Salt Lake City UT, November 18-20, 2007*
- A16. Ferrante A. & Elghobashi S.  
"On the accuracy of the two-fluid formulation in DNS of bubble-laden turbulent boundary layers"  
**59th American Physical Society Meeting, Division of Fluid Dynamics**  
*Tampa FL, November 19-21, 2006*
- A15. Ferrante A. & Elghobashi S.  
"Effects of microbubbles on the Taylor-Green vortex flow"  
**58th American Physical Society Meeting, Division of Fluid Dynamics**  
*Chicago IL, November 20-22, 2005*
- A14. Elghobashi S. & Ferrante A.  
"Reynolds number effect on drag reduction in a microbubble-laden spatially-developing turbulent boundary layer"  
**58th American Physical Society Meeting, Division of Fluid Dynamics**  
*Chicago IL, November 20-22, 2005*
- A13. Elghobashi S. & Ferrante A.  
"On drag reduction in a microbubble-laden spatially developing turbulent boundary layer"  
**13th IUTAM Advanced School & Workshop**  
**Particle Dispersion in Turbulent Flows**  
*CISM, Udine, Italy, September 12-16, 2005*
- A12. Elghobashi S. & Ferrante A.  
"Reynolds number effect on drag reduction in a microbubble-laden spatially developing turbulent boundary layer"  
**13th IUTAM Advanced School & Workshop, Particle Dispersion in Turbulent Flows**  
*CISM, Udine, Italy, September 12-16, 2005*
- A11. Elghobashi S. & Ferrante A.  
"On drag reduction in a microbubble-laden spatially developing turbulent boundary layer"  
**European Science Foundation (ESF) Workshop**  
**Challenging Turbulent Lagrangian Dynamics**  
*Castel Gandolfo, Rome, Italy, September 1-4, 2005*

- A10. Elghobashi S. & Ferrante A.  
"Reynolds number effect on drag reduction in a bubble-laden spatially developing turbulent boundary layer"  
***Hydrodynamics of Bubbly Flows***  
*Lorentz Center, Leiden, The Netherlands, June 6-10, 2005*
- A09. Ferrante A. & Elghobashi S.  
"Effects of bubble diameter on drag reduction in a microbubble-laden spatially developing turbulent boundary layer over a flat plate"  
***57th American Physical Society Meeting, Division of Fluid Dynamics***  
*Seattle WA, November 21-23, 2004*
- A08. Elghobashi S. & Ferrante A.  
"On the drag reduction in a microbubble-laden spatially developing turbulent boundary layer"  
***IUTAM Symposium on Recent Advances in Disperse Multiphase Flow Simulations***  
*Argonne National Laboratory, Illinois, October 4-7, 2004*
- A07. Ferrante A., Elghobashi S., Adams P., Valenciano M., Longmire D.  
"Evolution of Quasi-Streamwise Vortex Tubes and Wall-Streaks in a Bubble-Laden Turbulent Boundary Layer over a Flat Plate"  
***Annual American Physical Society (APS) March Meeting***  
*Montreal, Canada, March 22-26, 2004*
- A06. Ferrante A., Elghobashi S., Adams P., Valenciano M., Longmire D.<sup>4</sup>  
"Evolution of Quasi-Streamwise Vortex Tubes and Wall-Streaks in a Bubble-Laden Turbulent Boundary Layer over a Flat Plate"  
***21st Gallery of Fluid Motion (Winning Video Entry)***  
***56th American Physical Society Meeting, Division of Fluid Dynamics,***  
*East Rutherford NJ, November 23-25, 2003*
- A05. Elghobashi S. & Ferrante A.  
"Drag reduction in a bubble-laden spatially developing turbulent boundary layer over a flat plate"  
***56th American Physical Society Meeting, Division of Fluid Dynamics***  
*East Rutherford NJ, November 23-25, 2003*
- A04. Ferrante A. & Elghobashi S.  
"A method for generating inflow conditions for direct simulations of spatially developing turbulent boundary layers"  
***56th American Physical Society Meeting, Division of Fluid Dynamics***  
*East Rutherford NJ, November 23-25, 2003*
- A03. Ferrante A. & Elghobashi S.  
"DNS of a spatially developing turbulent boundary layer laden with bubbles"  
***5th EUROMECH, Fluid Dynamics Conference***  
*Toulouse France, August 24-28, 2003*
- A02. Ferrante A. & Elghobashi S.  
"Dispersion of bubbles in a spatially developing turbulent boundary layer"  
***55th American Physical Society Meeting, Division of Fluid Dynamics***  
*Dallas TX, November 24-26, 2002*

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<sup>4</sup> <https://vimeo.com/142559247>

A01. Ferrante A. & Elghobashi S.  
"On the decay rate of particle-laden isotropic turbulence"  
**54th American Physical Society Meeting, Division of Fluid Dynamics**  
San Diego CA, November 18-20, 2001

**b) On-line journal papers (non-refereed)**

- OJ04. Elfring G.J.†, A Ferrante  
"Introduction to the 37th Annual Gallery of Fluid Motion (Seattle, WA, 2019)"  
**Physical Review Fluids**, Vol. 5 (11), 2020
- OJ03. Ferrante A., Matheou G., Dimotakis P., Stephens M., Adams P., & Walters R.  
"LES of an inclined jet into a supersonic turbulent crossflow"  
**arXiv:0910.3018v1**, <http://arxiv.org/abs/0910.3018v1>, 2009
- OJ02. Ferrante A., Pantano C., Matheou G., Dimotakis P., Stephens M., Adams P.,  
Walters R. & Hand R.  
"LES of an inclined jet into a supersonic cross-flow"  
**arXiv:0810.1957v1**, <http://arxiv.org/abs/0810.1957v1>, 2008
- OJ01. Ferrante A. & Elghobashi S. (invited article)  
"Drag reduction by microbubbles in a spatially-developing turbulent boundary layer:  
Reynolds number effect (HPCMP/CAP)"  
**Navigator**, Spring 2006, [http://www.navo.hpc.mil/Navigator/sp06\\_Feature2.html](http://www.navo.hpc.mil/Navigator/sp06_Feature2.html)

**c) Parts of books (chapters in edited books)**

B01. Ferrante A. & Elghobashi S.†  
Invited to write the Book Chapter titled:  
*"Physics of two-way coupling in particle-laden turbulent flows"*  
Which will be the first chapter after the Introduction of the Book:  
*"Modelling approaches and computational methods for particle-laden turbulent flows"*  
edited by Shankar Subramaniam and S. Balachandar  
This book is going to be part of a Book Series entitled  
*"Computation and Analysis of Turbulent Flows"* edited by Paul Durbin  
Publisher Elsevier (*In Preparation*, 2021)

**d) Featured articles in magazines and websites regarding A. Ferrante's research**

- FA05. **Prism Magazine (ASEE)**  
"Go with the Flow" (2021)
- FA04. **The Daily (UW)**  
"UW researchers discover a new law of physics" by Niv Joshi (2021)
- FA03. **Department of Aeronautics & Astronautics (UW)**  
"New law of physics finds a sweet spot for aircraft efficiency" by Amy Sprague (2021)
- FA02. **National Center for Supercomputing Applications (NCSA at UIUC)**  
"Flowing" (2013)  
<http://www.ncsa.illinois.edu/news/stories/flowing/>
- FA01. **National Institute for Computational Science (NICS at the Univ. of Tennessee)**  
"Experiencing some turbulence" (2013)  
<http://www.nics.tennessee.edu/ferrante-4-2013>

**Other significant research dissemination (web sites, software, Wikis, etc.)**

- RD10. **Computational Fluid Mechanics (CFM) Lab Website**  
Amy Sprague, CFM Lab students & Ferrante A. (2021)  
<https://sites.uw.edu/cfmlab/>
- RD09. **Computational Fluid Mechanics (CFM) Lab - Facebook Page**  
Ferrante A. (2020)  
<https://www.facebook.com/cfmlab>
- RD08. Dodd M., Hedges T. & Ferrante A.  
"Droplet evaporation in a turbulent flow"  
**70th American Physical Society Meeting, Division of Fluid Dynamics**  
*Video entry to the Gallery of Fluid Motion*  
Denver, CO, November 19-21, 2017  
<https://vimeo.com/238200190>
- RD07. Dodd M., Aleem M. & Ferrante A.  
"Interaction of Taylor lengthscale size droplets and isotropic turbulence"  
**68th American Physical Society Meeting, Division of Fluid Dynamics**  
*Video entry to the Gallery of Fluid Motion*  
Boston, MA, November 22-24, 2015  
<https://vimeo.com/142559292>
- RD06. **Multi-Media Fluid Mechanics-II (DVD), Cambridge University Press 2008**  
**Edited by Prof. G. M. Homsy (UBC & UW) et al.**  
"Evolution of Quasi-Streamwise Vortex Tubes and Wall-Streaks in a Bubble-Laden Turbulent Boundary Layer over a Flat Plate"  
Video by Ferrante A. et al. included in this Educational DVD.  
<http://media.efluids.com/galleries/turbulence?medium=6>
- RD05. **e-fluids media gallery**  
"LES of an Inclined Jet into a Supersonic Turbulent Cross-Flow" (2009)  
Video by Ferrante A. et al.  
<http://media.efluids.com/galleries/all?medium=699>
- RD04. **Videos of the computational fluid mechanics (CFM) research group**  
<http://www.aa.washington.edu/research/cfm/videos.html>
- RD03. **Direct Numerical Simulation (DNS) database**  
Ferrante, A.  
"DNS of a spatially-developing turbulent boundary layer over a flat plate"  
<http://cfmdatabase.aa.washington.edu/>
- RD02. **Direct Numerical Simulation (DNS) database**  
Ferrante, A. & Elghobashi, S.  
"DNS of a spatially-developing turbulent boundary layer over a flat plate"  
*CFD Database, CINECA, Italy, <http://cfd.cineca.it/cfd>*
- RD01. **UW Fluid Mechanics website**  
Kent B., Webster K., Posner J., Ferrante A.  
<http://fluidmechanics.uw.edu/>



## Patents

- Ferrante A., Lu D.\* & Aithal A.\*  
*U.S. Patent Application 63/027,041 filed 5/19/2020, EFS ID 42752540 filed on 5/18/2021*  
*Entitled: "Predicting incipient separation in turbulent flows"*  
*Inventors: Antonino Ferrante, Dawei Lu, Abhiram Aithal*
- Maddalena L.\*\*, Bonanos A. M.\*\*, Dimotakis P. E.† & Ferrante A.  
*"A High-spatial-resolution probe, with a simplified calibration technique for simultaneous total and static pressure measurements in supersonic flow with moderate flow angularity and swirl" US Provisional Application N. 29,373 (Filed in 2008)*

## Workshops attended

- "High Performance Computing – Artificial Intelligence – Advisory Council Conference"  
*Stanford University, Palo Alto CA, February 14-15, 2019*
- "Center for Turbulence Research Summer Program – Final Presentations"  
*Center for Turbulence Research, Stanford University, Palo Alto CA, August 1 2014*
- "Tutorials on Advanced MPI/OpenMP/CUDA/OpenCL/VisIt"  
*Supercomputing 2010, New Orleans, November 14-15, 2010*
- "Hypersonic entry and cruise vehicles"  
*Stanford University / NASA / VKI, Stanford CA, June 30 - July 3, 2008*
- "Parallel Computing at NPACI"  
*San Diego Supercomputer Center, University of California, San Diego, Jan. 26-28, 2000*
- "Multiphase Fluid Flow and Heat Transfer"  
*Université Catholique de Louvain, Belgium, August 4-17, 1996*
- "Short Course on Aerothermodynamics"  
*Centro Italiano Ricerche Aerospaziali (CIRA), Capua Italy, May 8-10, 1996*

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OTHER SCHOLARLY ACTIVITY

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**Invited lectures and seminars**

**S31. *AIAA Turbulence Model Benchmarking Discussion Group***

*Virtual Meeting*

"Law of incipient separation & FastRK3"

December 1, 2020

**S30. *ILASS Americas 2019 – Keynote Lecture***<sup>5</sup>

*Institute of Liquid Atomization and Spray Systems for the Americas*

*Arizona State University, Tempe, AZ*

"Physical mechanisms of droplet/turbulence interaction"

May 14, 2019

**S29. *Lawrence Livermore National Laboratory, Livermore, CA***

"Physical mechanisms of droplet/turbulence interaction"

February 25, 2019

**S28. *NASA Ames, Mountain View, CA***<sup>6</sup>

*Advanced Modeling & Simulation Seminar Series*

"A fast pressure-correction method for incompressible flows over curved walls"

February 22, 2019

**S27. *Stanford University, Palo Alto, CA***

*Institute of Computational Mathematics*

"A fast pressure-correction method for incompressible flows over curved walls"

February 12, 2019

**S26. *Stanford University, Palo Alto, CA***<sup>7</sup>

*Center for Turbulence Research*

"A fast pressure-correction method for incompressible flows over curved walls"

January 25, 2019

**S25. *Stanford University, Palo Alto, CA***

*Fluid Mechanics Seminar Series CoE*

"Physical mechanisms of droplet/turbulence interaction"

May 1, 2018

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<sup>5</sup> Details on Ferrante's plenary lecture and abstract can be found at  
[http://www.ilass.org/2019/Keynote\\_Presentations.html](http://www.ilass.org/2019/Keynote_Presentations.html)

<sup>6</sup> The NASA Ames Advanced Modeling & Simulation Seminar Series are prestigious public seminars.  
Details can be found at <https://www.nas.nasa.gov/publications/ams/2019/02-21-19.html>

<sup>7</sup> <https://ctr.stanford.edu/fast-pressure-correction-method-incompressible-flows-over-curved-walls>

- S22. **University of Washington, Seattle, WA**  
*AOS UW/Tohoku University Workshop*  
"Fast DNS of wall-bounded and multiphase turbulent flows"  
*November 16, 2017*
- S21. **University of California, Irvine, CA**  
*Dept. of Mechanical and Aerospace Engineering*  
"On the physical mechanisms of droplet/turbulence interaction"  
*November 2, 2017*
- S20. **University of Southern California, Los Angeles, CA**  
*Dept. of Aerospace and Mechanical Engineering*  
"On the physical mechanisms of droplet/turbulence interaction"  
*November 1, 2017*
- S19. **University of California, Los Angeles, CA**  
*Dept. of Mechanical and Aerospace Engineering*  
"A fast pressure-correction method for simulating two-fluid flows and DNS of droplet-laden isotropic turbulence"  
*May 23, 2014*
- S18. **California Institute of Technology, Pasadena, CA**  
*Dept. of Mechanical and Civil Engineering*  
"A fast pressure-correction method for simulating two-fluid flows and DNS of droplet-laden isotropic turbulence"  
*May 22, 2014*
- S17. **University of Washington, Seattle, WA**  
*Willaim E. Boeing Dept. of Aeronautics & Astronautics*  
"A fast pressure-correction method for simulating two-fluid flows and DNS of droplet-laden isotropic turbulence"  
*May 12, 2014*
- S16. **Stanford University, Stanford, CA**  
*Center for Turbulence Research*  
"A fast pressure-correction method for simulating two-fluid flows and DNS of droplet-laden isotropic turbulence"  
*May 9, 2014*
- S15. **University of Washington, Seattle, WA**  
*Department of Material Science Engineering*  
"DNS of droplet-laden incompressible turbulent flows: surface tension in a mass conserving, split advection VoF method"  
*April 9, 2012*
- S14. **University of California, San Diego, CA**  
*Department of Mechanical and Aerospace Engineering*  
"A mass-conserving volume of fluid method: volume tracking in incompressible isotropic turbulence"  
*November 7, 2011*

- S13. **University of Washington, Seattle, WA**  
*Department of Applied Math*  
"Towards petascale DNS of spatially developing turbulent boundary layers at high Reynolds number"  
*December 1, 2009*
- S12. **Lawrence Livermore National Laboratory, Livermore, CA**  
"Towards petascale DNS of spatially developing turbulent boundary layers at high Reynolds number"  
*November 10, 2009*
- S11. **University of Washington, Seattle, WA**  
*Department of Aeronautics & Astronautics*  
"Reduction of skin-friction drag with microbubbles & Large-eddy simulation of an inclined jet in supersonic cross-flows"  
*March 13, 2008*
- S10. **University of Washington, Seattle, WA**  
*Department of Aeronautics & Astronautics*  
"Reduction of skin-friction in a microbubble-laden spatially developing turbulent boundary layer over a flat plate"  
*February 25, 2008*
- S09. **California Institute of Technology, Pasadena, CA**  
*Department of Mechanical Engineering*  
"Reduction of skin-friction in a microbubble-laden spatially developing turbulent boundary layer over a flat plate"  
*October 23, 2007*
- S08. **Yale University, New Haven, CT**  
*Dept. of Mechanical Engineering*  
"Reduction of skin-friction in a microbubble-laden spatially developing turbulent boundary layer over a flat plate"  
*October 9, 2007*
- S07. **California Institute of Technology, Pasadena, CA**  
*Compressible Turbulence Lunch (ASC)*  
"Reduction of skin-friction in a microbubble-laden spatially developing turbulent boundary layer over a flat plate"  
*April 10, 2007*
- S06. **University of Michigan, Ann Arbor, MI**  
*Department of Aerospace Engineering*  
"Reduction of skin-friction in a microbubble-laden spatially developing turbulent boundary layer over a flat plate"  
*January 11, 2007*

- S05. **University of California, Santa Barbara, CA**  
*Center for Risk Studies and Safety*  
"Reduction of skin-friction in a microbubble-laden spatially developing turbulent boundary layer over a flat plate"  
*August 15, 2006*
- S04. **Lawrence Livermore National Laboratory, Livermore, CA**  
"Dispersion of solid particles in a turbulent backward facing step"  
*October 28, 2004*
- S03. **University of California, Irvine, CA**  
*Dept. of Mechanical and Aerospace Engineering*  
"Reduction of skin-friction in a microbubble-laden spatially developing turbulent boundary layer over a flat plate"  
*February 26, 2004*
- S02. **University of California, Irvine, CA**  
*Dept. of Mechanical and Aerospace Engineering*  
"Drag reduction in a bubble-laden spatially developing turbulent boundary layer over a flat plate"  
*October 2, 2003*
- S01. **Università di Napoli 'Federico II', Italy**  
*Dipartimento di Progettazione Aeronautica*  
"On the physical mechanisms of two-way coupling in particle-laden isotropic turbulence"  
*January 4, 2002*

## Awards of Advisees

### **Abhiram Aithal (Ph.D. student)**

2021 Condit Distinguished Dissertation Fellowship, A&A, CoE, UW

### **Mira Tipirneni (M.S. student)**

2019 Gordon C. Oates Endowed Fellowship, CoE, UW

### **Trevor Hedges (B.S. 2018)**

2018 Dean's Medal for Academic Excellence

<https://www.engr.washington.edu/mycoe/awards/deanmedal>

### **Pablo Trefftz-Posada (Ph.D. student)**

2017 SIAM CSE17 Broader Engagement Selected Participant, Sustainable Horizons Institute

2016 20 Twenties Award, Aviation Week and the AIAA

2015 Paul A. Carlstedt Endowed Fellowship in AA, UW

2015 Ruth C. Hertzberg Fellowship, CoE, UW

2015 Theodore H. and Marie M. Sarchin Endowed Fellowship in Engineering, CoE

### **Andreas Freund (Ph.D. 2020)**

2015 Boeing Endowment for Excellence Fellowship in Applied Math

### **Michael Dodd (Ph.D. 2017)**

2016 Postdoctoral Fellowship, Center for Turbulence Research, Stanford University

2016 ICTAM U.S. Early Career Travel Fellowship, National Academy of Sciences

2015 ICTAM U.S. Early Career Travel Fellowship, National Academy of Sciences

2014 65th Annual Lindau Nobel Laureate Meeting, Germany

2014 Graduate School Fund for Excellence and Innovation Travel Award

2013 Marsh Fellowship, College of Engineering, University of Washington

2011 Egtvedt Fellowship, College of Engineering, University of Washington

2011 Paul A. Carlstedt Endowed Fellowship in Aeronautics and Astronautics, UW

### **Mishaal Aleem (B.S. 2015)**

2015 Outstanding Female Undergraduate Aeronautics & Astronautics

2015 Rudolph H. Reichel Memorial Scholarship

2015 Joseph F. Sutter Endowment Scholarship

2015 University of Washington Dean's List

2015 American Association of University Women Math Award

2015 Hazen Outstanding Senior - Math, Science, and Business Departments

2014 Wind Tunnel Crew of the Quarter (Autumn)

### **Irfan Syahdan (M.S. 2015)**

2013 Fulbright Fellowship

### **Barrett McCann (Ph.D. 2014)**

2010 National Science Foundation Graduate Research Fellowship

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## GRADUATE STUDENTS

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### Chair Doctoral Degrees (Ph.D.)

- **Andreas Freund**, Chair, 2020  
*Thesis title:* Wavelet-spectral analysis and large-eddy simulation using neural networks of droplet-laden decaying isotropic turbulence  
Continued as Vehicle Data Analyst, PACCAR
- **Michael Dodd**, Chair, 2017  
*Thesis title:* Direct numerical simulation of droplet-laden isotropic turbulence  
Continued as Postdoctoral Scholar, Center for Turbulence Research, Stanford University
- **Barrett McCann**, Chair, 2014  
*Thesis title:* A wall model for large-eddy simulation of compressible channel flows  
Current position: Faculty, U.S. Air Force Academy, Colorado Springs, Colorado

### Current Doctoral Students (Ph.D.)

- Abhiram Aithal
- Mira Tipirneni
- Pablo Trefftz-Posada

### Chair Masters Degrees (M.S.)

- Shao-Chi (George) Huang, 2021, continued as Quality Assurance Engineer, Convergent Solutions (CFD Co.)
- Mira Tipirneni, 2021, continued as Ph.D. student in the CFM lab, A&A, UW
- Madeline Samuell (with Dr. Williams), 2020, continued as CFD Analyst at the Applied Physics Laboratory, John Hopkins University
- Dawei Lu, 2019
- Alex Le, 2016, continued as Flight Sciences Engineer, Aerotec
- Irfan Syahdan (with Prof. J. Hermanson), 2015, continued as Flight Test Engineer at Bhimasena Research & Development
- Chris Uyeda, 2015, continued as System Engineer, Boeing Co.
- Sean McMahon, 2014, continued as Aerodynamicist in Flight-Test Engineering, Boeing
- Zhengcheng Gu, 2014
- Keegan Webster, 2013, continued as Mechanical Engineer, U.S. Army at Picatinny Arsenal
- Hezky Varon, 2011, continued M.S. in Computational Finance and Risk Management, and as Financial Analyst at Federal Home Loan Bank, Seattle

### **Current M.S. students**

- Amrit Tarur

### **Other significant student supervision**

#### **1) Undergraduate research supervision**

- **Qiyang Hu**, 1/2021 – Present, B.S. in AA expected in Spring 2022
- **Yaffet Bedru**, 3/2021 – 6/2021, Freshman
- **FNU Vinsensius**, 1/2020 – 6/2020, B.S. in AA expected in Spring 2021
- **Trevor Hedges**, 9/2016 – 6/2018, B.S. in AA 2018
- **Mishaal Aleem**, 9/2014 – 6/2015, B.S. in AA 2015
- **Daniel Hnatovic**, 12/2013 – 12/2014, B.S. in AA 2014
- **Hanna Culvert**, 9/12 – 6/13, B.S. in AA 2013
- **Chris Schweikhardt**, 9/12 – 6/13, B.S. in AA 2013
- **Christopher Uyeda**, 9/12 – 6/13, B.S. in AA 2013
- **Edison Amah**, 7/11-6/12, B.S. AA 2012
- **Kent Benedict** (1/12-6/12, B.S. in AA 2012)
- **Christopher Mair**, Fall 2012, visiting student from U. of Bristol, U.K.
- **Zhengcheng Gu**, 3/10-6/12, B.S. AA 2012
- **Sean McMahon**, 3/11-6/11, B.S. AA 2011
- **Alexandria Western**, Summer 2010
- **Keegan Webster**, 9/09-6/10, B.S. AA 2010

### **Thesis Committee Member**

#### **i) Ph.D. thesis defense or final exam**

- Chung Sun, 2021, Applied Math
- Nima Moallemi, 2018, Applied Science, School of Engineering, University of British Columbia, Canada
- Rajesh Chaunsali, 2018, AA
- Jens von der Linden, 2017, AA
- Chin Ng, 2016, ME
- Robert Vets, 2015, AA
- Chris Hansen, 2014, AA
- Eder Sousa, 2014, AA

#### **ii) General doctoral exam**

- Theodore Zhao, 2020, AA
- Xiaotian Shi, 2019, AA
- Brandon Blakely, 2019, ME



- Hyunryung Kim, 2017, AA
- Rajesh Chaunsali, 2016, AA
- Jens von der Linden, 2015, AA
- Robert Vets, 2014, AA
- Chin Ng, 2013, ME
- Chris Hansen, 2013, AA
- Eder Sousa, 2013, AA
- Anders Hansen, 2011, Physics (GSR)

iii) Qualifying exam

- Shiyao Lin, 2017, AA
- Avin Vijay, 2017, AA
- Peter Norgaard, 2014, AA
- Chris Hansen, 2011, AA
- Jens von der Linden, 2011, AA
- Dejian Nikic, 2010, AA

iv) M.S. thesis defense

- Matt Robbins, 2021, AA
- Sage Sarwas, 2019, AA
- Jon Frydman, 2018, AA
- Amir Mehmedagic, 2013, AA
- Micah Paul, 2012, AA

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## TEACHING

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### a) Courses taught

- **Undergraduate courses**
  - AA311 Atmospheric Flight Mechanics
  - AA402 Viscous Fluid Mechanics [*AA402 was on the List of Highly Rated Courses for the College of Engineering at the UW for Autumn 2015*]
- **Graduate courses**
  - AA507 Incompressible Fluid Mechanics
  - AA543 Computational Fluid Dynamics of Compressible Flows
  - AA544 Computational Fluid Dynamics of Incompressible Flows
- **Master of Aerospace Engineering**
  - AE520 Introduction to Fluid Dynamics
  - AE524 Computational Aerodynamics

### b) Instructor for UW STEM Bridge Program

- Introduction to Aircraft Design (short course), *Sep 2010*

### c) Workshops/Courses attended

- "Applied Leadership Teams' Facilitating Effective Meeting"  
*University of Washington, Seattle, October 13 & 27, 2020*
- "Conflict Management"  
*University of Washington, Seattle, September 10, 2020*
- "Technology Teaching Fellows Institute"  
*University of Washington, Seattle, July 13-17 & December 16, 2020*
- "Compassionate Leadership Summit"  
*University of Washington, Seattle, November 7-8, 2019*
- "Reflections on Teaching: Where We Were, Where We Are and Where We could Be" by Jim Borgford-Parnell  
*University of Washington, Seattle, April 29, 2019*
- "Faculty Fellow Teaching Workshop"  
*University of Washington, Seattle, September 12-16, 2011*
- "National Effective Teaching Institute" (NETI)  
*ASEE, Louisville KY, June 17-19, 2010*  
Instructors: Richard Felder, Michael Prince and Rebecca Brent  
Sponsored by the American Society for Engineering Education (ASEE)  
Nominated by Dean O'Donnell to attend this workshop

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## SERVICE

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### Departmental service

- Chair of Graduate Committee (2021-Present)
- Chair of Undergraduate Committee (2017-2021)
- Diversity Committee (2018-Present)
- Faculty Search Committee Member (2020-21)
- Faculty Lead of interviews on DEI with CTOs of private companies (2020-21)
- Space Committee (2017-20)
- Search Committee Member for the Sr. Computer Specialist position that resulted in hiring David Wilson (2019-20)
- Search Committee Member for the Sr. Computer Specialist position that resulted in hiring Stephen Scheier (2017)
- Computer Committee (2011-2018)
- Undergraduate Committee (2013-2017)
- Department Chair Search Committee (2013-2014)
- Graduate Committee (2010-2013)
- Strategic Planning Committee (2012-2015)
- Faculty MAE Colloquium Organizer for Autumn 2015

### University service

- Hyak Governance Board (HGB) Committee (2020-Present)
- College of Educational Policy (CEP) Committee (2017-18)
- Refereed proposals for Royalty Research Fund in 2009, 2013, 2015, 2016, 2017
- Hosted at the UW the short course offered by NCSA entitled “VSCSE Big Data for Science 2010” (Summer 2010)

### Professional society and other service

- **Theoretical & Computational Fluid Dynamics**  
Associate Editor since 2020
- **International Journal of Multiphase Flows**  
Editorial Advisory Board Member since 2019
- **APS Division of Fluid Dynamics**  
Chair of the Gallery of Fluid Motion Award Committee  
*Seattle, WA, November 2019*

- **APS Division of Fluid Dynamics**  
Chair/Organizer of the Focus Session: Direct Numerical Simulations of Fluid Interfaces, Deformation and Break-Up in Turbulence  
*Seattle, WA, November 2019*
- **APS Division of Fluid Dynamics**  
APS-DFD meeting local organizing committee member  
*Seattle, WA, November 2019*
- **Scientific Committee Member**  
Institute of Liquid Atomization and Spray System (Europe), ILASS 2019  
29th European Conference Liquid Atomization & Spray Systems  
*Paris, France, 2019*
- **Scientific Committee Member**  
International Conference on Multiphase Flows  
*Rio de Janeiro, Brazil 2019*  
[http://www.icmf2019.com.br/scientific\\_committee.html](http://www.icmf2019.com.br/scientific_committee.html)
- **Scientific Committee Member**  
International Conference on Multiphase Flows, Firenze, Italy, May 2016  
<http://www.aidic.it/icmf2016/scientific-committee.html>
- **APS Division of Fluid Dynamics**  
Andreas Acrivos Dissertation Award committee member (2016 & 2017)  
<https://www.aps.org/programs/honors/dissertation/acrivoss.cfm>
- **APS Division of Fluid Dynamics**  
APS-DFD meeting local organizing committee member  
*Portland, OR, November 2017*
- **APS Division of Fluid Dynamics**  
Host of the Young Investigators Workshop  
*Portland, OR, November 2017*
- **Conference sessions chaired**  
  
"Focus Session: Direct Numerical Simulations of Fluid Interfaces, Deformation and Break-Up in Turbulence"  
*72nd American Physical Society Meeting, Division of Fluid Dynamics*  
*Seattle, WA, November 2019*  
  
"Multiphase Flows: Turbulence"  
*72nd American Physical Society Meeting, Division of Fluid Dynamics*  
*Seattle, WA, November 2019*  
  
"Turbulent Boundary Layers: Curvature and Pressure Gradients"  
*72nd American Physical Society Meeting, Division of Fluid Dynamics*  
*Seattle, WA, November 2019*

"Modeling of Multiphase Flow"  
***International Conference on Multiphase Flows***  
*Firenze, Italy, May 2016*

"Multiphase Flows: Turbulence"  
***69th American Physical Society Meeting, Division of Fluid Dynamics***  
*Portland, OR, November 2016*

"CFD: High-Performance Computing"  
***69th American Physical Society Meeting, Division of Fluid Dynamics***  
*Portland, OR, November 2016*

"Turbulent Multiphase Flows"  
***67th American Physical Society Meeting, Division of Fluid Dynamics***  
*San Francisco, CA, November 24, 2014*

"Particle Laden Flows"  
***64th American Physical Society Meeting, Division of Fluid Dynamics***  
*San Diego CA, November 19, 2012*

"Drops, bubbles and multiphase flows"  
***23rd ICTAM***  
*Beijing, China, August 23, 2012*

"Multiphase Flow CFD"  
***20th AIAA Computational Fluid Dynamics Conference***  
*Honolulu, Hawaii, June 29, 2011*

"Turbulence simulation and high-performance computing"  
Invited Guest to Student Luncheon  
***63rd American Physical Society Meeting, Division of Fluid Dynamics***  
*Long Beach CA, November 21, 2010*

"Particle Laden Flows"  
***63rd American Physical Society Meeting, Division of Fluid Dynamics***  
*Long Beach CA, November 21, 2010*

"Turbulent Jets and Mixing Layers"  
***49th AIAA Aerospace Science Meeting***  
*Orlando, Florida, January 7, 2010*

"Particle Laden Flows"  
***62nd American Physical Society Meeting, Division of Fluid Dynamics***  
*Minneapolis MN, November 23, 2009*

### **Professional society memberships**

- High-Performance Computing – Artificial Intelligence Advisory Council, since 2019
- American Physical Society, Division of Fluid Dynamics, since 2001, life membership
- American Institute of Aeronautics & Astronautics (AIAA), since 2007, life membership
- Institute of Electrical and Electronics Engineers (IEEE), 2011
- von Kármán Institute Alumni Association (VKI), since 1997

### **International, national or governmental service**

- Panel reviewer for National and International Agencies

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## DIVERSITY, EQUITY & INCLUSION

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- Advised 12 students among Women and URM in STEM: 2 Ph.D., 3 M.S., 7 UG
- Currently the CFM lab is diverse with 50% members (three out of six members) who are women or URM students: 2 Ph.D., 1 UG.
- Lead interviews with CTOs of private companies for strategic planning on DEI for the A&A Dept. (Fall 2020)
- Member of the Diversity & Inclusion Committee of the A&A Dept. working to ensure that the A&A Community welcomes diversity in our department and fosters a culture of inclusion for women and underrepresented minorities in STEM.