

Antonino Ferrante

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EDUCATION

- 2004 Ph.D. Mechanical and Aerospace Engineering**
University of California, Irvine
Dissertation title: "Reduction of skin-friction in a microbubble-laden spatially developing turbulent boundary layer over a flat plate"
Advisor: Prof. S. Elghobashi
- 1997 M.S. Aeronautics and Aerospace (with honors)**
von Kármán Institute for Fluid Dynamics, Belgium
Thesis title: "Solution of the Unsteady Euler equations using Residual Distribution and Flux Corrected Transport"
Advisor: Prof. H. Deconinck
- 1996 Laurea Ingegneria Aeronautica (summa cum laude)**
Università di Napoli 'Federico II', Italy
Thesis title: "On the theoretical prediction of airfoils buffeting phenomenon"
Advisors: Prof. C. de Nicola & Prof. R. Tognaccini

ACADEMIC POSITIONS

3/2007-Present	Postdoctoral Scholar	California Institute of Technology (GALCIT)
3/2004-2/2007	Postdoctoral Scholar	University of California, Irvine (MAE)
9/1998-2/2004	Graduate Research Assistant	University of California, Irvine (MAE)
8/1997-8/1998	Research Assistant	Università di Napoli 'Federico II', Italy (AE)
9/1996-6/1997	Graduate Research Assistant	von Kármán Institute, Belgium (AA)

HONORS AND AWARDS

- 2003 Gallery of Fluid Motion, Video Entry Award**
American Physical Society, Division of Fluid Dynamics
- 2003 Dissertation Fellowship Award**
Henry Samueli School of Engineering, University of California, Irvine
- 1998 Study Abroad Fellowship Award**
Università di Napoli 'Federico II', Italy
- 1997 Belgian Government Prize**
von Kármán Institute for Fluid Dynamics, Belgium
- 1997 Diploma with Honors**
von Kármán Institute for Fluid Dynamics, Belgium

PUBLICATIONS IN REFEREED JOURNALS

- J08. L'vov V.S., Pomyalov A., Ferrante A. & Elghobashi S.
"An analytical model for temporally-developing turbulent boundary layers"
Journal 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)

ARCHIVAL CONFERENCE PAPERS

- CP03. Ferrante A. & Elghobashi S.
"On the effects of finite-size particles on decaying isotropic turbulence"
International Conference on Multiphase Flow
Leipzig, Germany, July 9-13, 2007
- CP02. 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
- CP01. 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

PAPERS ON-LINE

- OP01. Ferrante A. & Elghobashi S.
"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

ABSTRACTS OF CONFERENCE PAPERS

- C20. 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
- C19. 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
- C18. 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
- C17. 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
- C16. 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
- C15. 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
- C14. 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
- C13. 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

- C12. 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
- C11. 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
- C10. 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
- C09. 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
- C08. Elghobashi S. & Ferrante A.
"On the physical mechanisms of drag reduction in a microbubble-laden turbulent boundary layer"
International Conference on Multiphase Flows
Yokohama, Japan, May 31-June 3, 2004
- C07. 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
- C06. 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"
21st Gallery of Fluid Motion (Winning Video Entry)
56th American Physical Society Meeting, Division of Fluid Dynamics,
East Rutherford NJ, November 23-25, 2003
- C05. 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
- C04. 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

- C03. 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
- C02. 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
- C01. 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

CONTRIBUTIONS TO CONTRACTOR WORKSHOPS & MEETINGS

- CW06. Dimotakis P.E. *et al.*
 "Design, Performance, and Operation of Efficient Ramjet-Scramjet Combined-Cycle Hypersonic Propulsion"
AFOSR/Multidisciplinary University Research Initiative (MURI) Hypersonic Review Meeting
 College Station TX, October 11-12, 2007
- CW05. Dimotakis P.E. *et al.*
 "Dispersion, Mixing, and Combustion in Turbulent and High-Speed Flows, Air-Breathing Propulsion, and Hypersonic Flight"
AFOSR/ARO Contractors Meeting on Chemical Propulsion
 Boulder CO, June 11-13, 2007
- CW04. Elghobashi S. & Ferrante A.
 "On the accuracy of the two-fluid formulation for DNS of a spatially developing turbulent boundary layer laden with microbubbles"
Office of Naval Research (ONR), 'Ship Wave Breaking and Bubbly Flows Review'
 California Institute of Technology, Pasadena CA, March 29-30, 2006
- CW03. Elghobashi S. & Ferrante A.
 "Reynolds number effect on drag reduction in a microbubble-laden turbulent boundary layer"
Office of Naval Research (ONR), 'Ship Wave Breaking and Bubbly Flows Review'
 Washington, DC, April 4-5, 2005
- CW02. Elghobashi S. & Ferrante A.
 "Dispersion of microbubbles in a turbulent boundary layer over a vertical flat plate"
Office of Naval Research (ONR), 'Ship Wave Breaking and Bubbly Flows Review'
 San Diego CA, March 24-25, 2004
- CW01. Elghobashi S. & Ferrante A.
 "DNS of a spatially developing turbulent boundary layer laden with bubbles"
Office of Naval Research (ONR), 'Ship Wave Breaking and Bubbly Flows Review'
 California Institute of Technology, Pasadena CA, February 19-20, 2003

COMPUTATIONAL AWARD

2004 Capability Application Project on IBM Power4+ (**HPC/DoD**)

FELLOWSHIPS

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

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

PATENTS

2008 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)

PROFESSIONAL ACTIVITIES & SERVICES

a) Reviewer for seven journals

b) 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>)

c) Professional memberships

American Physical Society (APS)

American Institute of Aeronautics and Astronautics (AIAA)