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**EDUCATION:**

- 2001 Johns Hopkins University, Baltimore, Maryland, Ph.D. (Oceanography)
- 1998 Johns Hopkins University, Baltimore, Maryland, M.A. (Oceanography)
- 1996 Nanjing University, Nanjing, Jiangsu, China, M.S. (Atmospheric Dynamics & Mesoscale Meteorology)
- 1993 Nanjing University, Nanjing, Jiangsu, China, B.S. (Meteorology)

**PROFESSIONAL EXPERIENCE:**

- 01/2007 – present Associate Scientist, Woods Hole Oceanographic Institution
- 12/2002 – 01/2007 Assistant Scientist, Woods Hole Oceanographic Institution
- 04/2002 – 11/2002 Postdoctoral Investigator, Woods Hole Oceanographic Institution
- 10/2000 – 03/2002 Postdoctoral Scholar, Woods Hole Oceanographic Institution
- 09/1996 – 09/2000 Research Assistant, Johns Hopkins University, Baltimore, MD
- 09/1997 – 12/1999 Teaching Assistant, Johns Hopkins University, Baltimore, MD
- 09/1991 – 07/1996 Research Assistant, Nanjing University, Nanjing, Jiangsu, China
- 09/1994 – 07/1995 Teaching Assistant, Nanjing University, Nanjing, Jiangsu, China

**HONORS, AWARDS AND FELLOWSHIPS:**

- Coastal Ocean Research Award, Woods Hole Oceanographic Institution, 2006
- Independent and Interdisciplinary Study Award, Woods Hole Oceanographic Institution, 2003
- Postdoctoral Scholar Fellowship, Woods Hole Oceanographic Institution, 2000
- Gilman Fellowship, Johns Hopkins University, 1996
- Ying-Song Scholarship, Nanjing University, 1990, 1994
- Guang-Hua Scholarship, Nanjing University, 1991, 1992
- Listed with 34 other junior undergraduate students (from among 1600) at Nanjing University as “The Most Creative Top Students of Nanjing University”, 1991
- Excellent Undergraduate Student Scholarship, Nanjing University, 1989 – 1993

**PROFESSIONAL AFFILIATIONS:**

- American Society of Limnology and Oceanography (ASLO)
- American Geophysical Union (AGU)
- American Physical Society (APS)
- The Society for Integrative & Comparative Biology (SICB)

**RESEARCH INTERESTS:**

- Small-scale biological-physical interactions, predator and prey perception in copepods, zooplankton ecology
- Bio-fluid dynamics, hydrodynamics of copepod swimming, feeding and sensing, computational fluid dynamics study of fish and squid propulsion
- Applied computational fluid dynamics
- Environmental fluid mechanics, large-eddy simulation of flow and sediment transport over ripples and muddy seabeds
- Marine meteorology, atmospheric mesoscale numerical modeling

**PROFESSIONAL ACTIVITIES:***Inside WHOI (Non Education Related):*

- Information Technology Advisory Committee Member (March 2005 – present)
- AOP&E Department Seminar Coordinator (Jan 2004 – March 2005)

*Outside WHOI:*

- Member of the editorial board of *Surveys in Geophysics* (03/2004 – present)
- Session co-chair (TS47 – Biological-Physical Interaction at Individual Plankton Scale), 2005 Aquatic Sciences Meeting, February 20-25, 2005, Salt Lake City, Utah, USA

Journal reviewer: *American Naturalist; Limnology and Oceanography; Marine Biology; Marine Ecological Progress Series; Aquatic Biology; Journal of Mathematical Biology; Journal of Plankton Research; The Biological Bulletin; Hydrobiologia; Journal of Sea Research*

Proposal reviewer for Biological Oceanography Program, Polar Program, and Ocean Technology and Interdisciplinary Coordination Program, National Science Foundation, USA.

Proposal reviewer for The Research Council of Norway.

#### **PARTICIPATION IN EDUCATION PROGRAM:**

Participated in preparing questions and answers and in grading the exams for MIT-OE Written Doctoral Part I Qualifying Examination (Hydrodynamics, January 2003 and January 2006).

2003 WHOI Summer Lecture Series for summer student & minority fellows. Jiang, H. Hydrodynamics of copepods, July 17, 2003.

#### **SUPERVISION AT WHOI:**

Mark Rapo, Ph.D. student, MIT/WHOI Joint Program, co-advisor (with Dr. M. Grosenbaugh), 2005 – present. Research Topic: *Hydrodynamic constraints on fish lateral line detection: CFD simulation of the hydrodynamic signals detected by the lateral line system of fish.*

Simon Freeman, (austral) summer undergraduate student fellow from New Zealand, worked with me for three months in the winter of 2004. Research Topic: *Computation fluid dynamics simulation of vortex shedding from a fish-like body.*

#### **PAPERS IN REFEREED JOURNALS:**

Jiang, H. and Paffenhöfer G.-A. (2007) Spatio-temporal hydrodynamic signal perception of motile ciliate prey by the female cyclopoid copepod *Oithona plumifera*. *Aquatic Biology*. Submitted July 2007. In revision.

Jiang, H. and Strickler, J. R. (2007) Copepod flow modes and modulation: A modeling study of the water currents produced by an unsteadily swimming copepod. *Philosophical Transactions of the Royal Society B: Biological Sciences*, 362, 1959-1971.

Jiang, H. and Grosenbaugh, M. A. (2006) Numerical simulation of vortex ring formation in the presence of background flow with implications for squid propulsion. *Theoretical and Computational Fluid Dynamics*, 20, 103-123.

Jiang, H. and Strickler, J. R. (2005) Mass density contrast in relation to the feeding currents in calanoid copepods. *Journal of Plankton Research*, 27, 1003–1012.

Jiang, H. and Osborn, T. R. (2004) Hydrodynamics of copepods: a review. *Surveys in Geophysics*, 25, 339-370.

Jiang, H. and Paffenhöfer G.-A. (2004) Relation of behavior of copepod juveniles to potential predation by omnivorous copepods: an empirical-modeling study. *Marine Ecology Progress Series*, 278, 225-239.

Jiang, H., Osborn, T. R. and Meneveau, C. (2002) Chemoreception and the deformation of the active space in freely swimming copepods: a numerical study. *Journal of Plankton Research*, 24, 495-510.

Jiang, H., Osborn, T. R. and Meneveau, C. (2002) Hydrodynamic interaction between two copepods: a numerical study. *Journal of Plankton Research*, 24, 235-253.

Jiang, H., Meneveau, C. and Osborn, T. R. (2002) The flow field around a freely swimming copepod in steady motion: Part II numerical simulation. *Journal of Plankton Research*, 24, 191-213.

Jiang, H., Osborn, T. R. and Meneveau, C. (2002) The flow field around a freely swimming copepod in steady motion: Part I theoretical analysis. *Journal of Plankton Research*, 24, 167-189.

Jiang, H., Meneveau, C. and Osborn, T. R. (1999) Numerical study of the feeding current around a copepod. *Journal of Plankton Research*, 21, 1391-1421.

#### **OTHER REFEREED PUBLICATIONS:**

Jiang, H. (2004) Numerical simulation of the flow field at the scale size of an individual copepod. In Handbook of scaling methods in aquatic ecology: measurement, analysis, simulation, Seuront, L.J. and Strutton, P.G., Eds., CRC Press, 479-491.

Lü, K. and Jiang, H. (2002) Effects of upper and low-level jets and condensation process of moisture on evolution of occluded frontal circulation. *Acta Meteorologica Sinica*, 60, 660-667 (in Chinese with an abstract in English).

Jiang, H. and Lü, K. (2000) Occluded frontal circulation in upper and lower-level jets. *Plateau Meteorology*, 19, 265-276 (in Chinese with an abstract in English).

- Lü, K. and Jiang, H. (1999) Influences of upper and low-level jets and condensation process of moisture on evolution of warm front circulation. *Acta Meteorologica Sinica*, 57, 681-693 (in Chinese with an abstract in English).
- Jiang, H. and Lü, K. (1998) The nonlinear long-waves excited by topography in a shear flow. *Plateau Meteorology*, 17, 231-244 (in Chinese with an abstract in English).
- Lü, K. and Jiang, H. (1998) Influences of interaction of external source with solitary wave on blocking. *Quarterly Journal of Applied Meteorology*, 9, 431-440 (in Chinese with an abstract in English).
- Lü, K. and Jiang, H. (1998) Local thermal forcing and the onset of quasi-stationary large amplitude disturbance. *Acta Meteorologica Sinica*, 56, 424-435 (in Chinese with an abstract in English).
- Lü, K. and Jiang, H. (1996) Forced solitary Rossby waves in a near-resonant flow in the presence of topography. *Acta Meteorologica Sinica*, 54, 142-153 (in Chinese with an abstract in English).

#### INVITED TALKS AND SEMINARS:

- Hatsopoulos Microfluids Seminar, November 29, 2005, Dept. of Mechanical Engineering, MIT. Title: Hydrodynamics of copepod swimming, feeding and sensing.
- Environmental Fluid Mechanics Seminar, October 27, 2005, Dept. of Civil and Environmental Engineering, MIT. Title: Small-scale biological-physical interactions in copepods.
- Warnemünde Turbulence Days 2005, September 28-30, 2005, Baltic Sea Research Institute Warnemünde, Germany. Jiang, H. (Invited speaker for the workshop). Title: Hydrodynamics of copepods.
- Seminar on September 26, 2005 at the Danish Institute of Fisheries Research, Charlottenlund, Denmark. Title: Hydrodynamics of copepods.
- Society for Experimental Biology Annual Main Meeting. 11th–15th July 2005, Universitat Autònoma de Barcelona, Barcelona, Spain. Jiang, H. (Invited speaker for Session A9 – Environmental constraints on locomotion and energetics in aquatic organisms.) Abstract: Jiang, H. and Strickler, J. R., Flow modes and modulation of the water currents produced by free-swimming calanoid copepods. *Comparative Biochemistry and Physiology Part A* 141 (2005) S163 – S164.
- International Cross-Disciplinary Symposium on Physics and Biology. March 3rd - March 7th 2005, Oslo, Norway. Jiang, H., Flow modes and modulation of the water currents produced by free-swimming calanoid copepods.
- The 57th Annual Meeting of the Division of Fluid Dynamics, American Physical Society, November 21-23, 2004, Seattle, WA. Jiang, H. and Strickler, J. R., Flow modes and modulation in copepod generated flows. (Invited mini-symposium talk.)
- SIAM Conference on Applications of Dynamic Systems, May 27-31, 2003, Snowbird, UT. Jiang, H., Biological-physical interactions at the scale size of an individual copepod. (Invited mini-symposium talk.)
- Interactions between the hydrodynamics and chemoreception in calanoid copepods: a numerical approach. Jiang, H., University of Wisconsin – Milwaukee, Center for Great Lakes Studies and the Great Lakes WATER Institute, May 2001.
- Theoretical and numerical studies of the hydrodynamics and chemoreception in calanoid copepods. Jiang, H., Skidaway Institute of Oceanography, Savannah, GA, May 2001.

#### MEETING ABSTRACTS AND TALKS:

- AOP&E COFDL seminar on June 28, 2007. Title: Direct comparison between numerical simulation and field observation for turbulent flow over large wave orbital scale ripples.
- EUROMECH Colloquium 488, The influence of fluid dynamics on the behaviour and distribution of plankton. June 13-15, 2007, University of Liverpool, Liverpool, UK. Jiang, H., Numerical simulation of flow created by protists sinking, swimming or interacting with each other.
- ASLO 2007 Aquatic Sciences Meeting, February 4-9, 2007, Santa Fe, NM. Jiang, H., Strickler, J.R. and Paffenhöfer, G.-A. Revisit to mechanical energy consumption of the swim-and-sink behavior of calanoid copepods.
- ASLO 2007 Aquatic Sciences Meeting, February 4-9, 2007, Santa Fe, NM. Strickler, J.R. and Jiang, H. Unsteady flow generation by calanoid copepods.
- ASLO 2007 Aquatic Sciences Meeting, February 4-9, 2007, Santa Fe, NM. Fields, D.M. and Jiang, H. Sensory morphology and fluid structure: Determining the form function relationship in mechanosensory hairs.
- AGU Fall Meeting, December 11-15, 2006, San Francisco, CA. Jiang, H. and Traykovski, P. A. Direct comparison between numerical simulation and field observation for turbulent flow over large wave orbital scale ripples.
- 2006 RipplesDRI Annual Workshop, September 28-29, 2006, Woods Hole, MA. Jiang, H. and Traykovski, P. A. Modeling flow over large-wave-orbital-scale ripples: Large-eddy simulation vs. k- $\omega$  URANS.
- ASLO Summer Meeting, June 4-9, 2006, Victoria, British Columbia, Canada. Jiang, H. and Paffenhöfer, G.-A. On the ecology of *Oithona*. II. An analysis of the temporal-spatial signal perception by *Oithona plumifera*.

- AOP&E COFDL seminar on April 21, 2006. Title: Large-eddy simulation of flow over ripples: A preliminary study.
- AOP&E departmental seminar on June 15, 2005. Title: Hydrodynamic signal perception in zooplankton.
- ASLO 2005 Aquatic Sciences Meeting, February 20-25, 2005, Salt Lake City, UT. Jiang, H. and Paffenhöfer, G.-A. Directional information on hydrodynamic signal perception by prey in nauplius-predator encounters.
- AOP&E COFDL seminar on December 10, 2004. Title: Unsteady copepod feeding currents and small-scale mixing.
- AOP&E COFDL seminar on March 12, 2004. Title: Finite volume vs. finite difference, unstructured grid vs. structured grid: (informal) CFD with examples.
- ASLO/TOS 2004 Ocean Research Conference, February 15-20, 2004, Honolulu, HI. Jiang, H. and Paffenhöfer, G.-A. Relation of behavior of copepod juveniles to potential predation by omnivorous copepods: an empirical-modeling study.
- The 56th Annual Meeting of the Division of Fluid Dynamics, American Physical Society, November 23-25, 2003, East Rutherford, NJ. Jiang, H., Meneveau, C. and Osborn T. R. Swimming behavior and flow geometry: a fluid mechanical study of the feeding currents in calanoid copepods.
- The 56th Annual Meeting of the Division of Fluid Dynamics, American Physical Society, November 23-25, 2003, East Rutherford, NJ. Jiang, H. and Grosenbaugh, M. A. Numerical simulation of vortex ring formation in the presence of background flow with implications for squid propulsion
- The Second M.I.T. Conference on Computational Fluid and Solid Mechanics, June 17-20, 2003, Cambridge, MA. Jiang, H. and Grosenbaugh, M.A. Numerical simulation of vortex ring formation in the presence of background flow with implications for squid propulsion.
- AOP&E COFDL seminar on March 14, 2003. Title: A probable ecological function of the multiple-encounter feeding currents in calanoid copepods: a preliminary modeling study.
- The 55th Annual Meeting of the Division of Fluid Dynamics, American Physical Society, November 24-26, 2002, Dallas, TX. Jiang, H. and Grosenbaugh, M.A. Numerical simulation of vortex ring formation in the presence of background flow: implications for squid propulsion.
- AOP&E departmental seminar on May 15, 2002. Title: Numerical simulation of vortex ring formation with implications for squid jet propulsion.
- American Geophysical Union, American Society of Limnology and Oceanography, 2002 Ocean Sciences Meeting, February 11-15, 2002, Honolulu, Hawaii. Abstract: Jiang, H., Osborn, T. R., and Meneveau, C., A hydrodynamic model for free-swimming copepods: The significance of being self-propelled.
- Society for Integrative and Comparative Biology (SICB) 2002 Meeting, January 2-6, 2002, Anaheim, California. Abstract: Anderson, E. J., Jiang, H., and Grosenbaugh, M. A., Jet flow in swimming squid.
- 36th European Marine Biology Symposium: A Marine Science Odyssey into the 21st Century. Maó (Menorca), September 17-22, 2001. Abstract: Strickler, J. R. and Jiang, H., Double trouble: Life in 3D and at low Reynolds numbers.
- American Society of Limnology and Oceanography, ASLO Aquatic Sciences 2001 in Albuquerque, New Mexico, February 12-16, 2001. Abstract: Jiang, H., Osborn, T. R. and Meneveau, C., Theoretical and numerical studies of the hydrodynamics and chemoreception of calanoid copepods.
- American Society of Limnology and Oceanography, Limnology and Oceanography: Navigating into the next century, February 1-5, 1999, Santa Fe, New Mexico. Abstract: Jiang, H., Meneveau, C. and Osborn, T. R., Numerical study of the feeding current around a copepod.
- Johns Hopkins Conference in Environmental Fluid Mechanics, April 2-4, 1998, Baltimore, Maryland. Abstract: Jiang, H., Meneveau, C. and Osborn, T. R., Direct simulations of the feeding current around a copepod.
- American Geophysical Union, American Society of Limnology and Oceanography, 1998 Ocean Sciences Meeting, February 9-13, 1998, San Diego, California. Abstract: Jiang, H., Meneveau, C. and Osborn, T. R., Direct simulations of the feeding current around a copepod.
- ICES International Symposium, Recruitment Dynamics of Exploited Marine Populations: Physical-Biological Interactions, September 22-24, 1997, Baltimore, Maryland. Abstract: Jiang, H., Meneveau, C. and Osborn, T. R., Bio-physical coupling of predator-prey interactions.

#### **WORKSHOPS ATTENDED:**

- 2006 RipplesDRI Annual Workshop, Woods Hole Oceanographic Institution, Woods Hole, MA, September 28-29, 2006.
- 2004 Finite Volume Coastal Ocean Model (FVCOM) Workshop, New Bedford, MA, June 15-16, 2004.
- Weather Research and Forecasting (WRF) Model Summer Tutorial 2004, Boulder, CO, June 28 – July 2, 2004.
- BASC Workshop on Challenges in Representing Physical Processes in Coupled Atmosphere-Land-Ocean Models, Woods Hole, MA, July 12-13, 2004.

Workshop: The Next Generation of in situ Biological and Chemical Sensors in the Ocean, July 13–16, 2003,  
Woods Hole, MA.