

CONTACT INFORMATION	IBM Thomas J. Watson Research Center 1101 Kitchawan Rd, Yorktown Heights, NY 10598 <i>Phone:</i> 401-808-1693 <i>E-mail:</i> kyongmin@gmail.com
EDUCATION	<p><b>Brown University</b> Providence, RI Ph.D. in Applied Mathematics May 2011</p> <ul style="list-style-type: none"> <li>• Dissertation: <i>Some aspects of suspension flows: Stokes to turbulent flows</i></li> <li>• Adviser: Dr. Martin R. Maxey</li> </ul> <p>Sc.M. in Applied Mathematics May 2007</p> <p><b>Yonsei University</b> Seoul, Korea Sc.M. in Mechanical Engineering February 2005</p> <ul style="list-style-type: none"> <li>• Thesis: <i>Near-wall characteristics of stably stratified turbulent channel flow</i></li> <li>• Adviser: Dr. Changhoon Lee</li> </ul> <p>Sc.B. in Civil Engineering February 1999</p>
PROFESSIONAL EXPERIENCE	<p><i>Research Scientist</i></p> <ul style="list-style-type: none"> <li>• IBM Thomas J. Watson Research Center Oct. 2014 - Present</li> </ul> <p><i>Visiting Scientist</i></p> <ul style="list-style-type: none"> <li>• Division of Applied Mathematics, Brown University Jul. 2013 - Present</li> </ul> <p><i>Postdoctoral Fellow</i></p> <ul style="list-style-type: none"> <li>• IBM Thomas J. Watson Research Center Jan. 2013 - Sep. 2014</li> <li>• Lawrence Berkeley National Lab. Jul. 2011 - Dec. 2012</li> </ul> <p><i>Research Assistant</i></p> <ul style="list-style-type: none"> <li>• Brown University, Division of Applied Mathematics 2005 - 2011</li> <li>• Yonsei University, Department of Mechanical Engineering 2002 - 2005</li> <li>• Yonsei University, Department of Civil Engineering 2001 - 2002</li> </ul>
RESEARCH INTERESTS	Multiscale Physics Modeling, Uncertainty Quantification, Machine Learning, Inverse Model, High Performance Computing, Complex Fluids, Soft Matter Physics, Turbulence Physics
PEER-REVIEWED JOURNAL PAPERS	<p><b>K. Yeo</b>, Y. Hwang, X. Liu &amp; J. Kalagnanam, “Stochastic optimization algorithm for spectral inverse model for advection-diffusion problem,” <i>SIAM J. Sci. Comput.</i>, in review (2016).</p> <p>Y. Hwang, E. Barut &amp; <b>K. Yeo</b>, “Statistical-physical estimation of pollution emission,” <i>Statistica Sinica</i>, in review (2016).</p> <p>X. Liu, <b>K. Yeo</b>, Y. Hwang, J. Singh, &amp; J. Kalagnanam, “A statistical modeling approach for air quality data based on physical dispersion processes and its application to Ozone modeling,” <i>Ann. Appl. Stat.</i>, <b>10</b>, 756 (2016)</p> <p><b>K. Yeo</b>, E. Lushi &amp; P. Vlahovska, “Dynamics of inert spheres in active suspensions of micro-rotors,” <i>Soft Matter</i>, <b>12</b>, 5645 (2016).</p> <p><b>K. Yeo</b>, E. Lushi &amp; P. Vlahovska, “Collective dynamics in a binary mixture of hydrodynamically coupled micro-rotors,” <i>Phys. Rev. Lett.</i>, <b>114</b>, 188301 (2015).</p>

- W. Langhans, **K. Yeo** & D. M. Romps, “Lagrangian investigation of the precipitation efficiency of convective clouds,” *J. Atmos. Sci.*, **72**, 1042 (2015).
- K. Yeo** & M.R. Maxey, “Force-coupling simulations of dense finite-inertia suspensions in a linear shear flow,” *Phys. Fluids*, **25**, 053303 (2013).
- K. Yeo** & D.M. Romps, “Measurement of convective entrainment using Lagrangian particles,” *J. Atmos. Sci.*, **70**, 266 (2013).
- K. Yeo** & M.R. Maxey, “Numerical simulations of concentrated suspensions of monodisperse particles in a Poiseuille flow,” *J. Fluid Mech.*, **682**, 491 (2011). Top 10 most downloaded articles (August 2011)
- K. Yeo** & M.R. Maxey, “Anomalous diffusion in wall-bounded suspensions of non-Brownian particles under steady shear,” *Europhys. Lett.*, **92**, 24008 (2010)
- K. Yeo** & M.R. Maxey, “Rheology and ordering transitions of non-Brownian suspensions in a confined shear flow: effects of external torques,” *Phys. Rev. E*, **81**, 062501 (2010)
- K. Yeo** & M.R. Maxey, “Ordering transitions of non-Brownian suspensions in confined steady shear flow,” *Phys. Rev. E*, **81**, 051502 (2010). Selected as PRE Kaleidoscope (May 2010).
- K. Yeo** & M.R. Maxey, “Dynamics of concentrated suspensions of non-colloidal particles in Couette flow,” *J. Fluid Mech.*, **649**, 205 (2010)
- K. Yeo** & M.R. Maxey, “Simulation of concentrated suspensions using the force-coupling method,” *J. Comput. Phys.*, **229**, 2401 (2010)
- K. Yeo**, B.-G. Kim & C. Lee, “On the near-wall characteristics of acceleration in turbulence,” *J. Fluid Mech.*, **659**, 405 (2010)
- K. Yeo**, S. Dong, E. Climent & M.R. Maxey “Modulation of homogeneous turbulence seeded with finite size bubbles or particles,” *Int. J. Multiphase flow*, **36**, 221 (2010)
- K. Yeo**, B.-G. Kim & C. Lee, “Eulerian and Lagrangian statistics in stably stratified turbulent channel flows,” *J. Turbulence*, **10**, 17 (2009)
- J. Jung, **K. Yeo** & C. Lee, “Behavior of heavy particles in isotropic turbulence,” *Phys. Rev. E*, **77**, 016307 (2008)
- E. Climent, **K. Yeo**, M.R. Maxey & G.E. Karniadakis “Dynamic self-assembly of spinning particles,” *J. Fluid Eng.*, **129**, 379 (2007). Top 10 most downloaded articles (April 2007)
- A.M. Reynolds, **K. Yeo** & C. Lee, “Anisotropy of acceleration in turbulent flows,” *Phys. Rev. E*, **70**, 017302 (2004)
- C. Lee, **K. Yeo** & J.-I. Choi, “Intermittent nature of acceleration in near wall turbulence,” *Phys. Rev. Lett.*, **92**, 144502 (2004)
- J.-I. Choi, **K. Yeo** & C. Lee, “Lagrangian statistics in turbulent channel flow,” *Phys. Fluids*, **16**, 779 (2004)
- S.-U. Choi, H. Kang & **K. Yeo**, “Flow and sediment transport in emerging vegetated zone,” *Ecology Civil Eng.*, **6**, 87 (2003)

CONFERENCE  
PRESENTATIONS

- X. Liu, **K. Yeo**, & J. Kalagnanam, “Statistical modeling for spatio-temporal degradation data,” INFORMS, TN, 2016. The QSR Best Paper Award
- M.R. Maxey, M. Abbas, E. Climent, & **K. Yeo**, “Particle flows at finite Reynolds numbers,” IMA Conference, Cambridge, UK, 2016
- A. Howard, M.R. Maxey, & **K. Yeo**, “Particle fluxes and irreversibility due to shear flow in a bidisperse suspension,” ICMF 2016, Firenze, Italy, 2016
- K. Yeo**, E. Lushi, & P. Vlahovska, “Hydrodynamic self-organization and mixing in suspensions of micro-rotors,” APS March Meeting, MD, 2016
- M. R. Maxey, A. Howard, & **K. Yeo**, “Particle migration in non-uniform flows of Stokes suspensions,” IUTAM, FL, 2015
- K. Yeo**, E. Lushi, & P. Vlahovska, “Phase transition of active rotors due to passive particles,” 2015 APS DFD 68th Annual Meeting, MA 2015
- A. Howard, **K. Yeo**, & M.R. Maxey, “Particle dispersion in non-stationary and non-uniform suspension flows,” 2015 APS DFD 68th Annual Meeting, MA 2015
- K. Yeo**, E. Lushi, & P. Vlahovska, “Self-organization in active suspensions of micro-rotors,” 2015 AIChE Annual Meeting, UT 2015
- K. Yeo**, E. Lushi, & P. Vlahovska, “Phase behavior of monolayer suspensions of counter-rotating rotors,” 2014 APS DFD 67th Annual Meeting, CA 2014
- E. Lushi, **K. Yeo**, & P. Vlahovska, “Collective dynamics and mixing in a suspension of micro-rotors,” 2014 APS DFD 67th Annual Meeting, CA 2014
- Y. Hwang, E. Barut, & **K. Yeo**, “A statistical-physical approach for air quality forecasting,” Joint Statistical Meeting 2014, MA 2014
- Y. Hwang, **K. Yeo**, & E. Barut, “A statistical-physical approach for air quality forecasting,” International Symposium on Business and Industrial Statistics, NC, 2014
- W. Langhans, D.M. Romps & **K. Yeo**, “Lagrangian investigation of the precipitation efficiency of convective clouds,” AMS 31st Conference on Hurricanes and Tropical Meteorology, CA, 2014
- K. Yeo**, “Coupling building-resolving LES with meso-scale NWP: effect of the simulation parameters,” 2013 APS DFD 66th Annual Meeting, PA 2013
- M.R. Maxey, A. Howard, L. WinklerPrinz, A. Tripathi, & **K. Yeo**, “Dispersion of suspensions in unsteady microchannel flows,” 2013 APS DFD 66th Annual Meeting, PA, 2013
- W. Langhans, **K. Yeo**, & D.M. Romps, “A new framework to study convective transport of non-conserved quantities using stochastic Lagrangian particles,” 2013 AGU Annual Meeting, CA, 2013
- M.R. Maxey, G. Azadi, A. Tripathi, & **K. Yeo**, “Dispersion of suspension plugs in microchannels,” APS DFD 65th Annual Meeting, CA, 2012
- K. Yeo** & D.M. Romps, “Lagrangian analysis of the correlation between cloud size and entrainment rate in deep convecting clouds,” 2012 AGU Annual Meeting, CA, 2012
- K. Yeo** & D.M. Romps, “Lagrangian analysis of convective entrainment,” AMS 30th Conference on Hurricanes and Tropical Meteorology, FL, 2012

- K. Yeo** & M.R. Maxey, “Concentrated suspensions in a homogeneous shear flow with finite fluid inertia,” APS DFD 64th Annual Meeting, MD, 2011
- M.R. Maxey & **K. Yeo**, “Flow modulation by finite size particles: From Stokes suspensions to turbulence,” 41st AIAA Fluid Dynamics Conference and Exhibit, HI, 2011
- K. Yeo** & M.R. Maxey, “Anomalous diffusion of non-colloidal suspensions in a Couette flow,” APS DFD 63rd Annual Meeting, CA, 2010
- K. Yeo** & M.R. Maxey, “Numerical simulations of concentrated, non-colloidal suspensions in Poiseuille flows,” Society of Rheology 82nd Annual Meeting, NM, 2010
- K. Yeo** & M.R. Maxey, “Order transition in non-colloidal Couette suspension flows: effects of external torques,” APS DFD 62nd Annual Meeting, MN, 2009
- K. Yeo** & M.R. Maxey, “Numerical simulation of concentrated suspensions of non-colloidal particles in Couette flow,” Society of Rheology 81st Annual Meeting, WI, 2009
- K. Yeo** & M.R. Maxey, “Dynamic self-assembly of non-colloidal particles in Couette flow,” Society of Rheology 81st Annual Meeting, WI, 2009
- L.-P. Wang, H. Gao, L.-S. Luo, Y. Peng, **K. Yeo** & M.R. Maxey, “Comparing particle-resolved simulation methods for moving particles in a viscous fluid,” APS DFD 61st Annual Meeting, TX, 2008
- J. Lim, **K. Yeo** & C. Lee, “On the modification of near-wall structures in stably stratified turbulence,” APS DFD 58th Annual Meeting, IL, 2005
- J. Jeong, **K. Yeo** & C. Lee, “Dispersion of heavy particles in isotropic turbulence,” APS DFD 58th Annual Meeting, IL, 2005
- C. Lee, J. Jeong & **K. Yeo**, “Acceleration, enstrophy and dissipation in isotropic turbulence,” APS DFD 58th Annual Meeting, IL, 2005
- K. Yeo** & C. Lee, “On the modification of near-wall structures in stably stratified turbulence,” APS DFD 57th Annual Meeting, WA, 2004.
- K. Yeo** & C. Lee, “Modification of near-wall turbulent characteristics under stable stratification,” The 6th KSME-JSME Thermal and Fluid Engineering Conference, Jeju, Korea, 2004.
- K. Yeo** & C. Lee, “On the acceleration in inhomogeneous turbulence,” APS DFD 56th Annual Meeting, NJ, 2003.
- A.M. Reynolds, **K. Yeo** & C. Lee, “On the anisotropy of Lagrangian accelerations in turbulence,” APS DFD 56th Annual Meeting, NJ, 2003.
- K. Yeo** & C. Lee, “Acceleration statistics in turbulent channel flow,” 5th Asian Computational Fluid Dynamics, Busan, Korea, 2003.

INVITED TALKS

- Department of Mathematical Sciences, NJIT 2016
- Center for Computational and Applied Mathematics, Purdue University 2016
- Benjamin Levich Institute for Physico-Chemical Hydrodynamics, CCNY 2015
- Courant Institute of Mathematical Sciences, New York University 2014
- Department of Computational Science and Engineering, Yonsei University 2014
- Complex Fluids Group, City College of New York 2014
- SEAS Colloquium in Climate Science, Columbia University 2013
- Workshop on Multiphase Turbulent Flows in the Atmosphere and Ocean, NCAR 2012
- Department of Computational Science and Engineering, Yonsei University 2010

AWARDS	<ul style="list-style-type: none"> <li>• The Best Paper Award, INFORMS Quality, Statistics, and Reliability Section 2016</li> <li>• Research Division Award, IBM 2015</li> <li>• Travel Grant for 2012 European-U.S. Summer School on HPC Challenges 2012</li> <li>• Sigma Xi Award for excellence in research 2011</li> <li>• Dissertation Fellowship, Brown University 2011</li> <li>• Outstanding Master Thesis in Fluid Engineering, KSME 2005</li> </ul>
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REFeree FOR JOURNALS	<i>Journal of Computational Physics, Journal of Fluid Mechanics, Physics of Fluids, Fluid Dynamics Research, SIAM Journal on Applied Mathematics, Advances in Water Resources, Journal of Applied Meteorology and Climatology</i>
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