Heyrim Cho

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Education

2009.09-present	**Brown University**, Providence, RI, USA Ph.D in Applied Mathematics, May 2015(expected)
2007.03-2009.08	**Korea Advanced Institute of Science and Technology**, Daejeon, Korea M.S in Mathematics, August 2009
2003.03-2007.02	**Korea Advanced Institute of Science and Technology**, Daejeon, Korea B.S in Applied Mathematics (in Summa Cum Laude), February 2007
2001.03-2003.02	**Hansung Science High School**, Seoul, Korea

Publication

H. Cho, D. Venturi, G. E. Karniadakis, *'High-dimensional techniques for the joint response-excitation PDF equations*', J. Comput. Phys. (submitted).
H. Cho, X. Yang, D. Venturi, G. E. Karniadakis, *'New Algorithms for Propagating Uncertainty across Domains*', SIAM J. Sci. Comput. (submitted).
H. Cho, D. Venturi, G. E. Karniadakis, '*Statistical Analysis and Simulation of Random Shocks in Burgers Turbulence*', Proc. R. Soc. A (submitted).
H. Cho, D. Venturi, G. E. Karniadakis, '*Karhunen–Loève expansion for multi-correlated stochastic processes*', Prob. Eng. Mech., 34, 2013, 157–167
H. Cho, D. Venturi, G. E. Karniadakis, *'Adaptive Discontinuous Galerkin Method for Response-Excitation PDF Equations*', SIAM J. Sci. Comput., 35(4), 2013, B890–B911
D. Venturi, T. P. Sapsis, H. Cho and G. E. Karniadakis, *'A computable evolution equation for the joint response - excitation probability density function of stochastic dynamical systems'*, Proc. R. Soc. A, vol. 468 no. 2139, 2012, 759-783

Teaching Experience

2014.06-2014.08	Basic College Mathematics, RI Men's Correction Facility (CCRI program)
2010.09-2011.05	Methods of Applied Math: Differential Equation I, II, Teaching Assistant (Brown)
2008.03-2008.12	Analysis I, II, Teaching Assistant (KAIST)

Research Interests

Stochastic modeling/ Stochastic simulation	Stochastic dynamical system, Probability density evolution, Representation of random fields, Series expansion methods, Stochastic/deterministic multi-scale modeling, Generalized polynomial chaos, Probabilistic Collocation method, ANOVA
Numerical PDE	Finite element method, high-order spectral method, Discontinuous Galerkin method, Proper Generalized Decomposition
High performance computing	High-dimensional numerical techniques, Parallel computing

Professional Activities

2010.06-present	Research Assistant, CRUNCH group (Prof. George Em Karniadakis, Brown)
2008.12-2009.05	Research Assistant (Prof. Jae Sung Lee, Seoul National University Hospital)
2007.07-2008.12	Member of Computational Mathematics Lab (Prof. Chang Ock Lee, KAIST)

Honors

2009.9 – 2010.8	Graduate School Fellowship (Brown, Division of Applied Mathematics)
2006.2	Mathematical Contest in Modeling (COMAP) – Honorable Mention
2004.3 - 2006.12	Academic Excellence Scholarship (KAIST, Department of Applied Mathematics)
2003.3 - 2006.12	National Science Scholarship (Korea Science and Engineering Foundation)

Programming Experience

C, C++, Matlab, MPI, OpenMP, R, Java

Invited Talks in Conferences

'A new approach to UQ based on the joint excitation-response PDF: Theory and simulation',
SIAM-UQ12, Raleigh NC, 2012

'Spectral/hp element and discontinuous Galerkin methods for response-excitation PDF equations',
SIAM-CSE13, Boston (MA), 2013.

'Numerical methods for high-dimensional response-excitation PDF equations',
14th International conference on Approximation Theory (AT14), San Antonio TX, 2013

'Study of the stochastic inviscid Burgers equation with the joint response-excitation PDF equation',
4th International congress on Computational Engineering and Sciences (FEMTEC 2013), Las Vegas NV, 2013

'Karhunen-Loeve expansion for multi-correlated stochastic processes'
SIAM-UQ14, Savannah GA, 2014

'High-dimensional response-excitation PDF method : separated representation and ANOVA approximation',
International Conference on Spectral and High Order Methods (ICOSAHOM 2014), Salt Lake City UT, 2014