Biographical Sketch for Thomas Y. Hou

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Eduction and Training

- Undergraduate Institute: South China University of Technology; Major: Mathematics; Degree & Year: BS (1982).
- Graduate Institute: UCLA; Major: Mathematics; Dgree & Year: Ph.D. (1987).
- Postdoctoral Institute: Courant Institute; Area: Applied Mathematics; Dates: 1987-1989.

Professional Experience

- Caltech, Applied Math. Dept, Charles Lee Powell Professor, 2004–present,
- Caltech, Executive Officer, Dept of Applied and Comput. Math., 2000–2006,
- Caltech, Applied Math. Dept, Associate Professor, 1993–1998, Professor of Applied and Comput. Math, 1998–present.
- Courant Institute, Assistant Professor, 1989-1993

Honors and Awards

- AMS Fellow, 2012 (inaugural class);
- Fellow of American Academy of Art and Science, 2011;
- SIAM Fellow, 2009 (inaugural class);
- Computational and Applied Sciences Award, US Association of Computational Mechanics, 2005;
- Morningside Gold Medal Prize in Applied Mathematics, 2004;
- Charles Lee Powell Professorship, California Institute of Technology, 2004,
- James H. Wilkinson Prize in Numerical Analysis and Scientific Computing, SIAM, 2001;
- The Francois N. Frenkiel Award, American Physical Society, 1998;
- Keng Kang Prize in Scientific Computing, Chinese Academy of Sciences, 1997;
- Sloan Fellowship, 1990-1992;
- Invited Speaker, International Congress of Mathematicians, 1998;
- Invited Speaker, International Congress of Industrial and Applied Mathematics, 2003.
- Aziz Lecturer, University of Maryland, November, 2003.
- The Aisenstadt Chair, University of Montreal, 2004-2005.
- Theodore Y. Wu distinguished Lecturer, GALCIT, Caltech, October, 2011.

Related Publications

- M. Ci, M. Giles, T. Y. Hou, and Z. Zhang, *A Multiscale Multilevel Monte Carlo Method for Elliptic PDEs with Random Coecients*, submitted to SIAM/ASA J. UQ, 2014.
- P. Dostert, Y. Efendiev, T. Y. Hou, and W. Luo, *Coarse Gradient Langevin Algorithms for Dynamic Data Integration and Uncertainty Quantification,* JCP, **217** (2006), 123-142.

- Y. Efendiev, T. Y. Hou, and W. Luo, *Preconditioning of Markov Chain Monte Carlo Simulations Using Coarse-Scale Models,* SIAM J. Sci. Comput., **28 (2)** (2006), 776-803.
- T. Y. Hou and X. H. Wu, *A Multiscale Finite Element Method for Elliptic Problems in Composite Materials and Porous Media,* J. Comput. Phys., **134** (1997), 169-189.
- M. Cheng, T. Y. Hou, and Z. Zhang, *A Dynamically Bi-Orthogonal Method for Time-Dependent Stochastic Partial Differential Equations I: Derivation and Algorithms*, JCP, **242** (2013), 843-868. DOI:10.1016/j.jcp.2013.02.033 .
- M. Cheng, T. Y. Hou, and Z. Zhang, *A Dynamically Bi-Orthogonal Method for Time-Dependent Stochastic Partial Differential Equations II: Adaptivity and Generalizations*, JCP, **242** (2013), 753-776. DOI: 10.1016/j.jcp.2013.02.020 .
- M. Cheng, T. Y. Hou, M. Yan, and Z. Zhang, *A Data-driven Stochastic Method for Elliptic PDEs with Random Coefficients*, SIAM/ASA J. UQ, **1** (2013), 452-493. DOI. 10.1137/130913249.
- T. Y. Hou and Z. Shi, *Adaptive Data Analysis via Sparse Time-Frequency Representation* Advances in Adaptive Data Analysis, **3** (2011), 1-28. DOI: 10.1142/S1793536910000641.
- T. Y. Hou and Z. Shi, *Data-driven Time-Frequency Analysis*, Applied and Comput. Harminic Analysis, **35(2)** (2013), 284-308. http://dx.doi.org/10.1016/j.acha.2012.10.001.
- Y. Hou, Z. Shi, and P. Tavallali, *Convergence of a Data-Driven Time-Frequency Analysis Method*, Applied and Comput. Harmonic Analysis, **37 (2)** (2014), 235 - 270.

Synergistic Activities

- Founding Editor-in-Chief (Jan. 2002–2007), SIAM Interdisciplinary Journal on Multiscale Modeling and Simulation;
- Co-Founding Editor-in-Chief (Jan. 2009–present), Advances in Adaptive Data Analysis;
- Director of IMA Board of Governors, 2012-2013, member of IMA Board of Governors, 2010-2014; Member of SIAM Council, 2009-2014.
- Co-organizer, DOE Workshop on Multiscale Mathematics, Washington D. C., 5/2004.
- Co-organizer, IMA Hot-Topic Workshop on Trend and Instantaneous Frequency, 9/2011.
- Co-organizer, IPAM Workshop on Adaptive Data Analysis and Sparsity, 1/2013.

Collaborators & Other Affiliations

(a). Collaborators. Y. Efendiev (Texas A&M), I. Graham (Univ. of Bath, UK), A. Kiselev (Rice University), Q. Li (Caltech), G. Luo (City University of Hong Kong), V. Sverak (University of Minnesota), H. Schaeffer (Caltech), Z. Shi (Tsinghua University), Z. Zhang (Caltech).

(b). Graduate and Postdoctoral Advisors. Bjorn Engquist (UT Austin), Russ Caflisch (UCLA), George Papanicolaou (Stanford).

(c). Postdocs supervised: H. Ceniceros (UCSB), Z. Chen (CAS, Beijing), Z. Lei (Fudan Univ), R. Li (Peking Univ), G. Luo (CityU of Hong Kong), H. Schaeffer (Caltech). Z. Shi (Tsinghua University), S. Tang (Peking University), Q. Li (Caltech), X. Wu (Exxon-Mobile), P. Zhang (Peking Univ), Z. Zhang (Caltech), H. Zhou (Georgia Tech),

(d) Ph.D. students supervised: Jia-Chia Chu (Tsinghua Universiry), H. Ceniceros (UCSB), Y. Efendiev (Texas A&M), G. Hu (PIMCO), W. Luo (Financial Industry), P. Park (Harvard), Z. Shi (Tsinghua University), H. Si (Oracle), V. Stredie (Oracle), T. Strinopoulos (Industry), P. Tavallali (Caltech). A. Westhead (Bank of America), B. Wetton (UBC), X. Yu (University of Alberta),