

2nd Annual Distinguished Symposium in Computational Engineering Mathematics



Lunch Included

Tuesday, April 3rd, 2018

West Point, NY

Schedule and Topics:

1100: Welcome, Introductory Remarks, and Session Overview

1130: Luncheon, Fine Arts Building

1215: Speaker Sessions Begin

1500: Closing Remarks

For more information, please contact:

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What is Computational Engineering Mathematics?

In general, computational engineering mathematics (CEM) is the development and application of computational models and simulations to solve complex physical problems arising in engineering analysis and design, as well as in natural phenomena.

The development of the cell phone you use, our understanding of Earth's climate, and the weaponry advances of the U.S. Military could not have been accomplished without CEM. Engineers use it to build new and better products, researchers use it to better understand and predict complex physical phenomena, and academics use it to advance the field itself.

Join us as the Department of Mathematical Sciences sponsors a Colloquia on the most relevant topics of Computational Engineering Mathematics!

Speaker Profiles:



Dr. Piotr Moncarz

With a background in civil engineering, Dr. Moncarz has worked in the areas of reinforced and prestressed concrete, concrete distress due to material problems and adverse conditions, cracking of concrete, wood mechanics, steel structures, earthquake engineering and seismic assessments, field and analytical structural failure investigations, structural analyses of transmission towers, and investigations of ship and offshore platform failures. Dr. Moncarz is a Stanford Certified Project Manager skilled at providing means and methods to project and program organization and management. National Academy of Engineering (member), 2017



Theodore V. Hromadka, II, Ph.D., Ph.D., Ph.D.

Professor of Mathematics at USMA. Principal Engineer and Hydrologist for over 45 years for several consulting firms. He holds several professional licenses, including Civil Engineer, Geoscientist, and Geologist, and Fellow, Royal Meteorologic Society, with professional certifications in Hydrology for both surface water and groundwater. His publication record includes over 400 papers and book chapters and 28 books, and has prepared or directed project reports for over 1500 studies. He has served as an Expert Witness in 500+ Superior Court matters, appearing in 60+ Court trials. He has over 45 years of professional engineering experience and over 38 years of academic involvement and is a member of two American Academies.



Dr. Paolo Zannetti, QEP: President and Founder of EnviroComp Consulting, Inc. and the non-profit EnviroComp Institute. He has performed studies and scientific research in environmental sciences for over four decades. He has written 300+ publications, and 40+ books and book chapters in the fields of atmospheric sciences and numerical modelling. Dr. Zannetti has studied air quality problems all over the world, often using computer models to simulate the transport and fate of atmospheric chemicals. In addition, Dr. Zannetti has provided testimony at depositions/trials in more than 45 cases.



Dr. George F. Pinder

Professor of Civil Engineering, Mathematical Studies and Statistics and Computer Science at the University of Vermont. Upon being named the newest University Distinguished Professor, UVM President Sullivan said of Dr. Pinder: "Working at the nexus of groundwater hydrology and numerical mathematics, you were the first to recognize the power of this interdisciplinary approach to addressing the critical environmental issue of rehabilitating contaminated aquifers. Always at the forefront of pioneering efforts in groundwater modeling since your days as a graduate student; today you are universally recognized as one of the preeminent scholars of that discipline." Dr. Pinder has published more than 250 papers and 16 book chapters, and twelve books. Dr. Pinder is the recipient of numerous prestigious awards and accolades. He is the only UVM faculty member to have been inducted into the National Academy of Engineering.



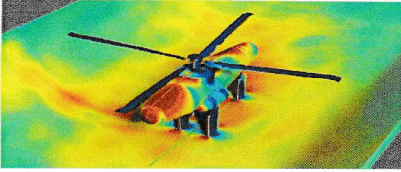
Dr. Radhakrishnan Balu

has five advanced degrees; including a Ph.D in computational chemistry from Univ. Maryland, an M.S in biotechnology from Johns Hopkins, and a B.S in computer science from the Indian Institute of Science, Bangalore. He leads a research team that has an integrated approach combining mathematical and theoretical physics to develop HPC based computational solutions for problems in quantum information sciences. The team, consisting of postdoctoral fellows, graduate students, and contractors, develop solutions for challenging problems in QIS in collaboration with academic faculty and industry partners. His projects fall under three broad categories of open quantum systems, quantum algorithms (walks, and games), and quantum machine learning.



Dr. DaHan Liao

received the Ph.D. degree in electrical engineering from the University of Michigan, Ann Arbor, MI, in 2009, with an emphasis on applied electromagnetics. From 2003 to 2008, he was a Research Assistant with the Radiation Laboratory, University of Michigan. Since 2009, he has been carrying out his research at the U.S. Army Research Laboratory, Adelphi, MD. His research interests include electromagnetic wave propagation and scattering, computational electromagnetics for communications and radar applications, signal and image processing, foliage- and ground-penetrating radar, and radar modeling and analysis for complex scenes.



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April 3rd, 2018

United States Military Academy, West Point
Fine Arts Building, Thayer Road

Agenda

Schedule and Topics:

- 1100: Welcome, Introductory Remarks, and Session Overview – COL Steve Horton, Head, Dept. of Mathematical Sciences, USMA
- 1110: Dr. Ted Hromadka II, Professor of Mathematics, USMA, “Progress in the USMA Computational Engineering Mathematics Program of Study”
- 1130: Luncheon, Fine Arts Building
- 1215: Speaker Sessions
- ❖ 12:20 – Dr. Piotr Moncarz, Vice President, Exponent, Inc., Professor, Stanford University, “Engineering Mathematics in the Age of Digital Disruption”
 - ❖ 12:50 – Dr. George Pinder, University Distinguished Professor, University of Vermont, “Finite Elements in Subsurface Flow and Transport: An Historical Perspective”
 - ❖ 1:20 – Dr. Paolo Zannetti, EnviroComp, Inc., Director, EnviroComp Institute, “Dynamic Simulations Using Particle Models”
 - ❖ 1:50 – Dr. Radhakrishnan Balu, Army Research Laboratory (ARL), USARMY REDCOM, “Quantum-Classical Hybrid Machine Learning for Gene Regulatory Pathways”
 - ❖ 2:20 – Dr. DaHan Liao, Army Research Laboratory (ARL), USARMY REDCOM, “Computational Electromagnetics for Radar Applications”
 - ❖ 2:50 – Closing Remarks, COL Paul Goethals, D/Math USMA