Frontiers in
Advanced Computing, Mathematics, and Data
Lecture Series

Data Analytics, Exascale Architectures and Computer Science: The Path to Tomorrow

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**Friday, February 6, 2015 10 AM
EMSL Auditorium**

Dr. Hendrickson has held various leadership positions at Sandia, all centered on scientific and high-performance computing. He also is an affiliated faculty in the Computer Science Department at the University of New Mexico. He has authored nearly 100 scientific papers, served on the editorial boards of a range of journals, and organized a number of international meetings. His research interests include combinatorial scientific computing, parallel algorithms, linear algebra, graph algorithms, scientific software, data mining, and computer architecture. Bruce is a SIAM Fellow and has earned a number of awards, including the Test of Time award at SC14 for his work on multilevel graph partitioning. He received his Ph.D. in computer science from Cornell University after obtaining degrees in mathematics and physics from Brown University.

Over the past three decades, computing has transformed the world, and the demand for computing continues to grow at a furious pace. Drivers for improved performance include machine learning, the internet-of-things, scientific computing, and more. However, fundamental physical and engineering constraints impose enormous challenges on computer architects. As a consequence, tomorrow's computers will be significantly more complex than before, creating difficult programming challenges. Both the scientific computing and data science communities have developed interesting ideas for improving software productivity, but alone neither is up to the challenges ahead. Serendipitously, there is growing alignment between the needs of these two communities, creating an opportunity to leverage each other in charting a path forward.
In his talk, Dr. Hendrickson will survey these complex trends and attempt to glimpse the road ahead at this time of transition and uncertainty.