

Mathematics Colloquium
Stat & Data Science Distinguished Speaker Series
Department of Mathematics and Division of Data Science
Proudly Present:

Dr. Xiaoye Sherry Li
Lawrence Berkeley National Laboratory

Friday, April 5, 2024

3:00pm – 4:00pm

PKH 110

Interplay of Linear Algebra, Machine Learning, and High Performance Computing

Abstract: In recent years, we have seen a large body of research using hierarchical matrix algebra to construct low complexity linear solvers and preconditioners. Not only can these fast solvers significantly accelerate the speed of large scale PDE based simulations, but also they can speed up many AI and machine learning algorithms which are often matrix-computation-bound. On the other hand, statistical and machine learning methods can be used to help select best solvers or solvers' configurations for specific problems and computer platforms. In both of these fields, high performance computing becomes an indispensable cross-cutting tool for achieving real-time solutions for big data problems. In this talk, we will show our recent developments in the intersection of these areas.

Short Bio: Dr. Xiaoye S. Li is a Senior Scientist in the Computational Research Division, Lawrence Berkeley National Laboratory. Dr. Li earned her Ph.D. in Computer Science from UC Berkeley in 1996, MS in Math & Computer Science from Penn State Univ. and B.S. in Computer Science from Tsinghua Univ. She has worked on diverse problems in high performance scientific computations, including parallel computing and sparse matrix computations. She has authored over 130 publications, and is the lead developer of SuperLU, a widely-used sparse direct solver, and has contributed to the development of several other mathematical libraries, including LAPACK and XBLAS. She has served on the editorial boards of the ACM Trans. Math. Software, IJHPCA, and SIAM J. Scientific Comput., as well as many program committees of the scientific conferences. She is a Fellow of SIAM and a Senior Member of ACM.

Refreshments before the talk and socializing following the talk

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