

Workshop I: Quantum Algorithms for Scientific Computation

October 2 - 6, 2023

Scientific Overview

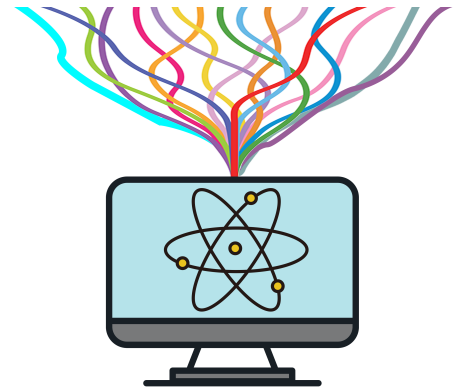
The recent development of quantum algorithms has significantly pushed forward the frontier of using quantum computers for performing a wide range of scientific computing problems. This includes solving numerical linear algebra tasks for very large matrices, such as solving linear systems, eigenvalue and singular value transformation, matrix function evaluation, trace estimation, topological data analysis, etc., as well as solving certain high dimensional linear and nonlinear differential equations.

This workshop aims to bring together leading experts across different disciplines, including experts in solving related tasks using classical computers that can potentially inspire the development of new quantum algorithms; discuss recent progress made in the development of quantum algorithms for scientific computation, and the advances in classical algorithms; foster the discussion and pave the path towards identifying and overcoming challenging problems in science and engineering and for various industrial and technological applications.

This workshop will include a poster session; a request for posters will be sent to registered participants in advance of the workshop.

Participation

Additional information about this workshop including links to register and to apply for funding, can be found on the web page listed below. Encouraging the careers of women and minority mathematicians and scientists is an important component of IPAM's mission, and we welcome their applications.



Organizers

Dominic Berry (Macquarie University)
Di Fang (UC Berkeley)
Lin Lin (UC Berkeley)
Konstantina Trivisa (U. of Maryland)

Speakers

Dong An (University of Maryland)
Dominic Berry (Macquarie University)
Mario Berta (RWTH Aachen University)
Anirban Chowdhury (U. of Waterloo)
Di Fang (UC Berkeley)
Andras Gilyen (ELKH)
Robin Kothari (Google)
Doga Kurkcuoglu (Fermilab)
Xiantao Li (Penn State University)
Lin Lin (UC Berkeley)
Christian Mendl (TU of Munich)
Rolando Somma (Google)
Yuan Su (Microsoft - Redmond, WA)
Yu Tong (Caltech)
Konstantina Trivisa (U. of Maryland)
Kianna Wan (Stanford University)
Jingbo Wang (U of Western Australia)

