



HARVARD UNIVERSITY
17 Oxford Street
Cambridge, MA 02138

Mathematical Picture Language Seminar



Tuesday,
February 28, 2023
9:30 a.m. Boston time

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Quantum Divide and Conquer

Abstract: The divide-and-conquer framework, used extensively in classical algorithm design, recursively breaks a problem into smaller subproblems, along with some auxiliary work, to give a recurrence relation for the classical complexity. We describe a quantum divide-and-conquer framework that, in certain cases, yields quantum speedup through an analogous recurrence relation for the quantum query complexity. We apply this framework to obtain near-optimal quantum query complexities for various string problems, such as (i) recognizing regular languages; (ii) decision versions of String Rotation and String Suffix; and natural parameterized versions of (iii) Longest Increasing Subsequence and (iv) Longest Common Subsequence. Based on joint work with Robin Kothari, Matt Kovacs-Deak, Arthi Sundaram, and Daochen Wang (arXiv:2210.06419).



Zoom QR Code & Link:

<https://harvard.zoom.us/j/779283357?pwd=MitXVm1pYUIJVzZqT3lwV2pCT1ZUQTog>

<https://mathpicture.fas.harvard.edu/seminar>