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Effects of Decoherence in Quantum Simulations NAYELI ZUNIGA-HANSEN, MARK S. BYRD, YU-CHIEH CHI — We investigate the effects of decoherence in quantum simulations by observing the evolution of the system when the Quantum Information Processor is coupled to the environment. We simulate the noise as the interactions between the particles of the processor itself and observe the effects of varying the strength of the couplings. We perform these calculations for different quantum systems and compare the results of those that interact with the environment to the same system when it's completely isolated from it to observe the effects of the noise on the simulation and investigate ways to prevent the adverse effects of the noise.

Nayeli Zuniga-Hansen

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