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Comparing codes for error corrected quantum annealing ANURAG MISHRA, TAMEEM ALBASH, Univ of Southern California, GERARDO PAZ, Dartmouth College, DANIEL LIDAR, Univ of Southern California — Previous work on the D-Wave Two (DW2) device has demonstrated the effectiveness of using error correction and suppression for quantum annealers. As the size of a quantum annealer increases, error correction becomes crucial for improved performance. We introduce a new type of code for error correction tailored to the hardware graph of the DW2, discuss the result of benchmarking this code on qubit chains, discuss various new decoding methods, and compare the performance to previous quantum annealing correction schemes.

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