

Abstract Submitted  
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**Performance of Quantum Annealers on Hard Scheduling Problems**<sup>1</sup> BIBEK POKHAREL, University of New Mexico, Department of Physics, DAVIDE VENTURELLI, ELEANOR RIEFFEL, NASA Ames Research Center — Quantum annealers have been employed to attack a variety of optimization problems. We compared the performance of the current D-Wave 2X quantum annealer to that of the previous generation D-Wave Two quantum annealer on scheduling-type planning problems. Further, we compared the effect of different anneal times, embeddings of the logical problem, and different settings of the ferromagnetic coupling  $J_F$  across the logical vertex-model on the performance of the D-Wave 2X quantum annealer. Our results show that at the best settings, the scaling of expected anneal time to solution for D-WAVE 2X is better than that of the DWave Two, but still inferior to that of state of the art classical solvers on these problems. We discuss the implication of our results for the design and programming of future quantum annealers.

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