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Prolonging coherence in trapped ions

We study pulse sequences that dynamically decouple ${}^9\text{Be}^+$ ions from their decohering environment. The noise environment the ions see is artificially synthesized to emulate a variety of physical systems. By incorporating measurement feedback, our locally optimized dynamical decoupling sequences (LODD) attain an order of magnitude improved suppression of noise in certain noise environments compared to known sequences.

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