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Electrical assessments of ^{28}Si enriched and deposited *in situ* to <1 ppm ^{29}Si JOSHUA POMEROY, National Institute of Standards and Technology, KEVIN DWYER, HYUN-SOO KIM, University of Maryland — We are enriching ^{28}Si to better than 99.9999%, depositing epitaxial films, and measuring materials properties to improve our deposition process so that our enriched films can be used to fabricate quantum devices. Recent reports of spin-echo measurements in donor ensembles and single spins have both demonstrated spectacular coherence time and line width improvements due to enriched ^{28}Si. In order to realize the benefits of our enrichment, the electrical properties of our films need to be similar quality to commercial wafers. Therefore, we are using C-V, g-V, Hall and other techniques commonly used for quantifying defect densities, mobility, carrier density, etc. to benchmark the viability of using our enriched films for quantum device fabrication.

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