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## Sub-50mK adiabatic demagnetization refrigeration with frustrated Yb-oxide magnets in the PPMS

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Accessing milli-Kelvin temperatures is a prerequisite for quantum-matter research and applications in quantum technologies. Adiabatic demagnetization refrigeration (ADR) is a simple and sustainable alternative to  $^3\text{He}/^4\text{He}$  dilution refrigeration. Geometrically frustrated triangular and kagome rare earth oxides feature important advantages compared to the traditionally utilized hydrated paramagnetic salts for mK-ADR, including higher entropy density, chemical stability and easier fabrication of cooling stages. I will present our recent work on materials optimization and customized ADR platforms for the Quantum Design Physical Property Measurement System.

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