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Spin-Polarized Collisions in Metastable Rare Gases CHAD ORZEL, RYAN MCMARTIN, Union College Department of Physics and Astronomy — We will report progress toward a measurement of ionizing collision rates in spin-polarized samples of metastable argon and krypton. The Penning ionization (PI: $Rg^* + Rg^* \rightarrow Rg + Rg^+ + e^-$) and associative ionization (AI: $Rg^* + Rg^* \rightarrow Rg_2^+ + e^-$) processes in these systems do not conserve spin; in the absence of spin-dependent interactions, these collisions should be strongly suppressed in spin-polarized samples. We will measure polarized and unpolarized collision rates using samples of laser-cooled atoms loaded into a magnetic trap.

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