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Enhanced Selective Field Ionization with Optical Dumping[1] VINCENT C. GREGORIC, Bryn Mawr College, THOMAS J. CARROLL, Ursinus College, MICHAEL W. NOEL, Bryn Mawr College — Detection of Rydberg atoms by field ionization provides some degree of state identification due to the $1/n^4$ scaling of the ionization threshold. However, some state information is lost when the atoms traverse avoided crossings during the ionization process. Here, we present an experimental method utilizing a "dump pulse" to detect dipole-dipole interactions involving initial and final states which would otherwise be indistinguishable in a field ionization signal.

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