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Modification of fine-structure collisional transfer cross sections in dense noble buffer gases ALINA GEARBA, JERRY SELL, RANDY KNIZE, United States Air Force Academy — We will present measurements of collisional fine-structure transfer between rubidium 5P states in Rb-He-Ar and Rb-He-Xe gas mixtures. The Rb-He mixing rates are significantly increased by the addition of Ar or Xe buffer gases, even though the Rb-He mixing cross section is orders of magnitude larger than those of Rb-Ar or Rb-Xe. We explain this effect due to three-body collisions which alter the Rb 5P fine-structure splitting and can be understood from the Rb-noble gas interatomic potentials. These results are generalized for fine-structure transfer in dense gases involving other excited states and atoms.

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