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Exploration of laser-excitation of Kr[1] PRIYANKA RUPASINGHE, TAO YANG, NEIL SHAFER-RAY, Homer L. Dodge Department of Physics and Astronomy, University of Oklahoma — Isotopic detection of the isotopes of Krypton has many important applications in atmospheric science [Zheng-Tian Lu and Peter Mueller, Chapter 4 - *Atom Trap Trace Analysis of Rare Noble Gas Isotopes*, Advances in Atomic, Molecular, and Optical Physics, Volume 58, 2010, Pages 173-205]. It has been shown that laser cooling and trapping of metastable Kr ($5s\ [3/2]_2$) is an effective means to achieve detection efficiencies of 1 part in10^{12}. A limiting factor in these studies is the production of metastable Kr, which is currently implemented using an RF discharge [C. Y. Chen et al., *Beam of metastable krypton atoms extracted from a rf-driven discharge*, Review of scientific instruments, Volume 72, No.1, 2001]. Here we report on the success of several experimental attempts at laser-based excitation.

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