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Prospects for Laser Cooling and Trapping Neutral Beryllium EDMUND MEYER, XINXIN ZHAO, Los Alamos Natl Lab — Beryllium has been long considered too difficult to laser cool and trap due in part to the large transition energy and single-photon ionization from the excited state. With the advent of new laser systems in the UV [1], the large transition energy is now addressed. Previous calculations [2] show a rather small ionization cross section from the excited $^1P_1$ manifold into the ionization channel. We present estimates for laser cooling and trapping neutral beryllium using the singlet manifold, and find a set of detuning and saturation parameters to reduce photo-ionization over the course of a laser-trapping and cooling experiment. The results show promise for future experiments in laser trapping and cooling with neutral beryllium. [1] Eismann, Ulrich, et al. "Short, shorter, shortest: Diode lasers in the deep ultraviolet." Laser Focus World 52.6 (2016): 39-44. [2] Kim, Dae-Soung, et al. "Photoionization of the excited $1s^2 2s 2p\,^{1,3}P^o$ states of atomic beryllium." Physical Review A 64.4 (2001): 042713.

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