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Towards a Magneto-Optical Trap of Potassium Atoms Loaded from a Cold Buffer Gas Beam MARYAM HIRADFAR, SRIDHAR PRABHU, EUNICE LEE, ZACK LASNER, BENJAMIN AUGENBRAUN, LAWRENCE CHEUK, JOHN DOYLE, Harvard University — We report on progress towards a magneto-optical trap (MOT) of potassium (K) atoms loaded from a cryogenic buffer gas beam (CBGB). We are building on our previous work,[1] which demonstrated high MOT loading rates. In this work, we intend to refine the approach, characterize the process in more detail, and increase the number of atoms loaded into the MOT. We are using atomic potassium, which is produced by laser ablation of a potassium-rich solid target in the presence of a high-density He buffer gas at 4 Kelvin. Potassium atoms are extracted into the CBGB with pulse length of a few ms. Further laser slowing (either white light or Zeeman) will bring the atoms to below the capture velocity of the MOT and should lead to exceptionally high loading rates and atom number.

[1]B Hemmerling, et al. New J. Phys. **16** 063070(2014)

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