

Abstract Submitted
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Progress Towards Laser Cooling and Trapping Strontium Monofluoride from a Cryogenic Beam Source¹ JOHN BARRY, EDWARD SHUMAN, DAVID DEMILLE, Yale University — We report on the continuing development of a cryogenic helium buffer-gas cooled molecular beam source which will ultimately be used to feed a trap for polar molecules. We have carefully characterized the properties of this source for strontium monofluoride (SrF) in a variety of buffer-gas flow regimes, ranging from the effusive (thermal mean velocity, moderate flux), to the deeply hydrodynamic (large forward velocity, high-flux, high collimation). Using this beam source we have demonstrated optical deflection and transverse cooling of our molecular beam, necessary steps to precool our beam before loading it into our trap.

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