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Characteristics of a 2-D Magneto-Optical-Trap[1] CHRISTIANE EBONGUE, ERIC MAGNAN, PABLO SOLANO, JEFFREY GROVER, LUIS OROZCO, Univ of Maryland-College Park — The 2D Magneto-Optical-Trap (MOT) produces a cold collimated Rubidium (^{87}Rb) atomic beam in a compact set up. The 2D MOT is in a stainless steel vacuum system, and requires a gradient of magnetic field as well as two different laser frequencies, one for cooling through a cycling transition and one for re-pumping atoms that fall into the wrong state. The vacuum system has four vacuum windows to allow retroflection of the cooling beams, a dispenser that generates a vapor of Rb atoms. The lowest pressure attained is about 10^{-10} mbar. We have produced the quadrupole field using first small permanent rare earth magnets, and then coils. Finally, the red-detuned cooling beam has a frequency offset a few MHz from transition frequency of ^{87}Rb, 5 $^2S_{1/2}$ F=2 $\rightarrow$ 5 $^2P_{3/2}$ F=3) with a circular polarization. The optics arrangement is compact using fiber optics. We present here advances and results of the 2D MOT.

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