

Abstract Submitted  
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**Optimized modulation parameters for a two-dimensional magneto-optical trap for cold fermionic potassium atoms**<sup>1</sup> JAE HOON LEE, Korea Research Institute of Standards and Science, JONGCHUL MUN, KRISS-University of Science Technology — We study optimized parameters for a high flux atomic beam source for <sup>40</sup>K fermionic atoms from a frequency modulated two-dimensional magneto-optical trap (2D MOT). The laser cooling beam frequencies of the 2D MOT were effectively broadened via electro-optical modulators at 10 MHz with modulation depths  $\beta$  ranging up to 7, depending on the laser intensity. A two-color pushing laser beam was also implemented for an asymmetrically directed atomic beam source. All laser parameters of the 2D MOT beams along with the magnetic field gradient were scanned for optimal atomic flux. With the added modulation, we were able to obtain 4 times enhancement of the atomic flux which was limited by the applied laser power.

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