Some Notes

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September 09, 2012

1 Time-of-flight

Following the derivation in [1] and outlined in [2].

1.1 Thermal velocity distribution

1.2 Temperature from a point source

1.3 Temperature from a non-point source

2 Gaussian beam

Working out the derivation from [3].

References

[1]I. Yavin, M. Weel, A. Andreyuk, and A. Kumarakrishnan, "A calculation of the time-of-flight distribution of trapped atoms", American Journal of Physics **70**, 149–152 (2002).

[2]R. Ding, "Narrow Line Cooling of ^{84}Sr", Master of Science (Rice University, Dec. 12, 2016).

[3]A. E. Siegman, *Lasers* (Oct. 17, 1986).