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The density broadening in a condensate detected by a pulse train[1]

JIANING HAN[2], JQI, NIST, and University of Maryland, Gaithersburg, Maryland, 20899, USA — High resolution microwave spectroscopy has been used to detect the density broadening in a Bose Einstein Condensate (BEC) by probing the Sodium clock-transition. Rabi line shape is generated by a single pulse and Ramsey fringes are produced by two pulses. Here we measured the density broadening by multiple pulses. Moreover, by narrowing the pulse-width of the pulses, the collisional broadening can be partially reduced. Furthermore, this multipulse technique can be calculated by exactly solving the time-dependent two-level Schrodinger equations. And the experimental results are compared with the calculations.

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