

Abstract Submitted
for the DAMOP15 Meeting of
The American Physical Society

Magnetic field enabled Lamb-Dicke spectroscopy of the 1S_0 - 3P_0 transition in ^{24}Mg ERNST M. RASEL, ANDRE KULOSA, DOMINIKA FIM, KLAUS ZIPFEL, STEFFEN SAUER, WOLFGANG ERTMER, Institut fuer Quantenoptik, Leibniz Universitaet Hannover — We succeeded in optically exciting the electronic state 3P_0 in ^{24}Mg by quenching its lifetime with the help of a magnetic field. The atoms were laser cooled and trapped in an optical lattice tuned to the magic wavelength, where the ac Stark shift of the transition vanishes. In this way we determined the transition frequency, the magic wavelength and the quadratic magnetic Zeeman shift and can compare the observed values with the predictions based on theoretical models and previous experiments. We also will discuss the performance of a clock operated with bosonic magnesium.

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Date submitted: 30 Jan 2015

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