

Abstract Submitted
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Spectroscopy of a singly trapped $^{25}\text{Mg}^+$ ion JASON NGUYEN,
BRIAN KING, McMaster University — We will present and discuss results from
a measurement of the linewidth and hyperfine A constant of the $^2\text{P}_{1/2}$ excited state
in $^{25}\text{Mg}^+$. We trapped the ion in a linear Paul trap and laser cooled it using the
 $^2\text{S}_{1/2} \rightarrow ^2\text{P}_{3/2}$ transition. We optically pumped the ion into the $F=3, m_F=-3$ ground
state and weakly probed it with a tuneable fiber laser that was scanned to drive the
ion from the ground state to the $F=3$ and $F=2$ manifolds of the $^2\text{P}_{1/2}$ state. The
final state of the ion was determined by counting fluorescence (or the lackthereof)
from the $^2\text{S}_{1/2}(F=3, m_F=-3) \rightarrow ^2\text{P}_{3/2}(F=4, m_F=-4)$ cycling transition with a pho-
tomultiplier tube. Using this method we measured the linewidth with negligible
Doppler contributions at different laser intensities and varying magnetic fields.

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