

Abstract Submitted
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Hyperfine Structure measurements of ^{45}Sc ¹ K.D. JONES, D.M. ROSSI, NSCL/MSU, K. MINAMISONO, A.J. MILLER, NSCL/MSU, Dep. Physics and Astronomy, H. ASBERRY, P.F. MANTICA, NSCL/MSU, Dep. Chemistry — A chain of charge radii shows discontinuity at nucleon magic numbers. This signature of the shell closure, however, is missing at the neutron magic number $N = 20$ for Ar, Ca and K isotopes. A collinear laser spectroscopy experiment on the stable ^{45}Sc isotope, which is one proton added to Ca, was performed as a prerequisite of radioactive beam experiments on Sc across $N = 20$ to further investigate the abnormal behavior. The experiment was performed at BEam COoling and LAser spectroscopy (BECOLA) facility at NSCL and a hyperfine spectrum was measured for the electronic transition of $3d4s\ ^3D_1 \rightarrow 3d4p\ ^3F_2$ at $\lambda = 364.3$ nm in $^{45}\text{ScII}$. The magnetic dipole and electric quadrupole hyperfine coupling constants A and B of both the lower and upper states were obtained from the hyperfine structure by fitting a pseudo-Voigt profile. The results obtained from these data are in good agreement with previous values and have smaller statistical errors. The detail of experiment and analysis will be discussed.

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