

Abstract Submitted  
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**Charge radii of neutron-deficient  $^{36,37}\text{K}$** <sup>1</sup> K. MINAMISONO, G. BOLLEN, B.A. BROWN, B. ISHERWOOD, A.J. MILLER, NSCL/Dep. Physics and Astronomy, MSU, H.B. ASBERRY, K. COOPER, P.F. MANTICA, D.J. MORRISSEY, NSCL/Dep. Chemistry, MSU, D.M. ROSSI, R. RINGLE, J.A. RODRIGUEZ, C.A. RYDER, A. SMITH, R. STRUM, C. SUMITHRERECHCHI, NSCL, MSU — Neutron and proton shell closures have been identified by discontinuities in the chain of charge radii. The shell-closure signature can be seen, e.g. at the  $N = 28$  and  $50$  neutron-shell closures for the isotopic chains of K through Mn. The signature at  $N = 20$ , however is absent in the Ca region. The charge radii of neutron-deficient  $^{36,37}\text{K}$  isotopes were determined to aid in understanding this abnormal behavior. The experiment was performed at the BEam COoling and LAser spectroscopy (BECOLA) facility at NSCL/MSU. The charge radii were obtained from isotope shifts determined from the hyperfine structure measurements by the optical pumping and subsequent  $\beta$ -decay asymmetry detection. The absence of an unambiguous signature of the shell effect is attributed to a balance of monopole and quadrupole proton-core polarizations above and below  $N = 20$ , respectively. The global behavior of the isotopic chain of K charge radii will be discussed.

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