Abstract Submitted
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**Magnetic Transition Rate Measurement in $^{19}$C** K. WHITMORE, H. IWASAKI, V.M. BADER, B.A. BROWN, A. GADE, C. LOELIUS, C. MORSE, S.R. STROBERG, NSCL/MSU, D. BAZIN, J.S. BERRYMAN, C. LANGER, F. RECCHIA, D. SMALLEY, D. WEISSHAAR, NSCL, C.M. CAMPBELL, P. FALLON, A.O. MACCHIAVELLI, LBNL, A. LEMASSON, GANIL, T. OTSUKA, U. of Tokyo, J. PARKER, FSU, T. SUZUKI, Nihon U., K. WIMMER, CMU — The magnetic transition rate of the $3/2^+ \rightarrow 1/2^+_{g.s.}$ transition in the one-neutron halo nucleus $^{19}$C has been determined via lifetime measurement. This represents the first measurement of the magnetic response of a halo nucleus. The lifetime was determined using two independent Doppler-shift techniques at the National Superconducting Cyclotron Laboratory along with the state-of-the-art gamma tracking array GRETINA. The observed transition strength $B(\mathrm{M1};\ 3/2^+ \rightarrow 1/2^+)$ is one of the most hindered among known M1 transitions in the mass region. In this talk, the lifetime results are presented, and the strong hindrance is discussed in terms of the halo configurations in $^{19}$C.

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