

Abstract Submitted
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Recoil Distance Method Lifetime Measurement of the First 2^+ State in ^{18}C ¹ PHILIP J. VOSS, T. BAUGHER, D. BAZIN, H. CRAWFORD, S. MCDANIEL, D. MILLER, A. RATKIEWICZ, K. WALSH, D. WEISSHAAR, MSU/NSCL, K. STAROSTA, Simon Fraser University, A. DEWALD, W. ROTHER, IKP Cologne — Electromagnetic transition rates can be directly obtained from lifetime measurements and shed light on the evolution of nuclear structure as one proceeds further from the valley of stability. Recoil Distance Method lifetime measurements have been successfully carried out at NSCL through the coupling of the Segmented Germanium Array and the NSCL/Köln plunger [1]. During a recent NSCL campaign, the collectivity and shape evolution of neutron-rich carbon isotopes were studied by lifetime measurements of the $2_1^+ \rightarrow 0^+$ transition in $^{16,18,20}\text{C}$. Excited states in ^{18}C were populated by a one-proton knockout at the target position of the S800 spectrograph. Particle-gated gamma-ray spectra were collected at five plunger target-degrader separation distances. The results of the lifetime measurement for ^{18}C will be presented.

[1] K. Starosta *et al.*, Phys. Rev. Lett. **99**, 042503 (2007).

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Philip Voss
Michigan State University/National Superconducting Cyclotron Laboratory

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