

Abstract Submitted  
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**Measurements of the  ${}^1\text{H}({}^{18}\text{F},\text{p}){}^{18}\text{F}$  and  ${}^1\text{H}({}^{18}\text{F},\alpha){}^{15}\text{O}$  Excitation Functions at the HRIBF<sup>1</sup>** D. W. BARDAYAN, J. C. BLACKMON, M. S. SMITH, Physics Division, ORNL, W. BRADFIELD-SMITH, R. LEWIS, P. D. PARKER, D. W. VISSER, Yale Univ., C. R. BRUNE, A. E. CHAMPAGNE, Univ. North Carolina, B. A. JOHNSON, R. L. KOZUB, Tenn. Tech. Univ., T. DAVINSON, A. C. SHOTTER, P. J. WOODS, Univ. Edinburgh, C. S. LEE, Chung-Ang Univ. — Knowledge of the astrophysical  ${}^{18}\text{F}(\text{p},\alpha){}^{15}\text{O}$  rate is important for understanding gamma-ray emission from novae and heavy-element production in x-ray bursts. A state with  $E_x \simeq 7.075$  MeV in  ${}^{19}\text{Ne}$  provides an s-wave resonance and, depending on its properties, could dominate the  ${}^{18}\text{F}(\text{p},\alpha){}^{15}\text{O}$  rate. By simultaneously measuring the  ${}^1\text{H}({}^{18}\text{F},\text{p}){}^{18}\text{F}$  and  ${}^1\text{H}({}^{18}\text{F},\alpha){}^{15}\text{O}$  excitation functions with a radioactive  ${}^{18}\text{F}$  beam at ORNL's Holifield Radioactive Ion Beam Facility, we have resolved discrepancies<sup>2,3,4</sup> in the properties of this astrophysically-important state. Our results will be presented.

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<sup>2</sup>Utku *et al.*, Phys. Rev. C**57**, 2731 (1998).

<sup>3</sup>Coszach *et al.*, Phys. Lett. B**353**, 184 (1995).

<sup>4</sup>Rehm *et al.*, Phys. Rev. C**52**, R460 (1995); **53**, 1950 (1996).

Prefer Oral Session  
 Prefer Poster Session

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