Abstract Submitted for the DNP12 Meeting of The American Physical Society

Search for resonant enhancement of the $^{7}Be+d$ reaction¹ PATRICK O'MALLEY, Colorado School of Mines, DAN BARDAYAN, Oak Ridge National Laboratory, ADEREMI ADEKOLA, Rutgers University, SUNGHOON AHN, University of Tennessee, KYUNGYUK CHAE, Oak Ridge National Laboratory, JOLIE CIZEWSKI, MEREDITH HOWARD, Rutgers University, KATE JONES, University of Tennessee, RAYMOND KOZUB, Tennessee Technological University, MILAN MATOS, BRIAN MOAZEN, Louisiana State University, CAROLINE NESARAJA, STEVE PAIN, Oak Ridge National Laboratory, WILLIAM PETERS, Oak Ridge Associated Universities, STEPHEN PITTMAN, Oak Ridge National Laboratory, FRED SARAZIN, Colorado School of Mines, KYLE SCHMITT, Oak Ridge National Laboratory, JOHN SHRINER, Tennessee Technological University, MICHAEL SMITH, Oak Ridge National Laboratory, IRENA SPASSOVA, Oak Ridge Associated Universities — ⁷Li abundances in the early universe, deduced from extrapolated observations, are several standard deviations lower than that estimated by Big Bang Nucleosynthesis calculations constrained by WMAP. Since most ⁷Li is produced by the beta decay of ⁷Be, one proposed solution to this long-standing puzzle is a resonant enhancement of the $^{7}Be(d,p)2\alpha$ reaction rate via the 5/2⁺ 16.7-MeV state in ^{9}B . The $^{7}Be(d,d)$ reaction was studied at Oak Ridge National Laboratory to search for such a resonance. This was performed in inverse kinematics using a 10-MeV radioactive ⁷Be beam and a thick CD_2 target. The experimental data and results will be discussed.

¹Work supported by DOE, NFS, and the SSGF.

Patrick O'Malley Colorado School of Mines

Date submitted: 03 Jul 2012

Electronic form version 1.4