Abstract Submitted
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Production of light neutron-rich nuclei in fusion-evaporation reactions[1] M. WIEDEKING, P. FALLON, A.O. MACCHIAVELLI, L.W. PHAIR, D.L. BLEUEL, R.M. CLARK, M. CROMAZ, M-A. DELEPLANQUE, J.D. GIBELIN, I-Y. LEE, L.G. MORETTO, E. RODRIGUEZ-VIEITEZ, D. WARD, LBNL, Berkeley, CA 94720, L.A. BERNSTEIN, J.T. BURKE, B.F. LYLES, LLNL, Livermore, CA 94550 — I will discuss our work to extend the experimental data on light neutron-rich nuclei and present new results on ^{18}N (Z=7), which is sufficiently far from stability to exhibit modified shell structure, yet still within the reach of stable beam facilities. ^{18}N was produced using the ^{9}Be(^{11}B,2p)^{18}N fusion reaction at LBNL's 88-Inch Cyclotron and studied using STARS-LIBERACE, a large area segmented silicon ΔE-E detector telescope and six HPGe "Compton Suppressed" Clover detectors. Previous information on the excited states of ^{18}N came from ^{18}C beta-decay and charge-exchange reactions only. A key aspect of the current measurement was to use the 2-proton evaporation reaction channel. The large Q-value and the chosen beam energy (50 MeV) suppressed the evaporation of additional neutrons, with the result that a 2p "gate" uniquely selected the ^{18}N products.

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