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The One-Neutron Knockout Reaction ${}^{9}\text{Be}({}^{44}\text{S}, {}^{43}\text{S})X^{1}$ T.R. BAUGHER, K.E. HOSIER, L.A. RILEY, Ursinus College, P.D. COTTLE, K.W. KEMPER, Florida State University, P. ADRICH, D. BAZIN, J.M. COOK, C.A. DIGET, A. GADE, D.A. GARLAND, T. GLASMACHER, A. RATKIEWICZ, K.P. SIWEK, D. WEISSHARR, National Superconducting Cyclotron Laboratory, Michigan State University — We studied the structure of the exotic isotope ${}^{43}\text{S}$ produced in the one-neutron knockout reaction ${}^{9}\text{Be}({}^{44}\text{S}, {}^{43}\text{S})X$. The experiment was conducted at the National Superconducting Cyclotron Laboratory (NSCL) at Michigan State University. We measured gamma-rays emitted by the excited ${}^{43}\text{S}$ nuclei produced in the reaction using the Segmented Germanium Array (SeGA). We extracted the knockout cross sections for the reaction and used a GEANT simulation of SeGA to fit our measured gamma-ray spectrum. An expanded level scheme is proposed. We also analyzed the momentum distributions of the knockout products in order to determine the orbital angular momentum of the neutron removed during the reaction.

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