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Gamow-Teller transitions from unstable ³⁴P to ³⁴Si via the $(^{7}\text{Li}, ^{7}\text{Be}+\gamma)$ reaction in inverse kinematics¹ R.G.T. ZEGERS, R. MEHARC-HAND, Y. SHIMBARA, SAM M. AUSTIN, D. BAZIN, B.A. BROWN, C. AA. DIGET, A. GADE, C.J. GUESS, M. HAUSMANN, G.W. HITT, D. WEISSHAAR, M. KING, D. MILLER, NSCL, Michigan State University, J. YURKON, A. SIG-NORACCI, K. STAROSTA, C. TUR, C. VAMAN, P. VOSS, NSCL, Michigan State University, M.E. HOWARD, The Ohio State University, S. NOJI, The University of Tokyo — Although charge-exchange reactions at intermediate energies with a variety of probes on stable nuclei have long been the preferred tool to extract Gamow-Teller strengths beyond the Q-value window available for β -decay, the implementation of such reactions for rare isotopes has proven to be an experimental challenge. Here, we report on the first successful extraction of a β + Gamow-Teller strength distribution from a radioactive isotope in an intermediate-energy charge-exchange experiment in inverse kinematics. The $(^{7}\text{Li}, ^{7}\text{Be}+\gamma)$ reaction at 100 AMeV was used to measure Gamow-Teller transition strengths from ${}^{34}P$ to states in ${}^{34}Si$. The results show that little mixing occurs between sd and pf shell configurations for the low-lying 0^+ and 2^+ states even though ³⁴Si neighbors the island of inversion and low-lying intruder states exist.

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