

¹³F

Charity et al. described the discovery of ¹³F in “Observation of the Exotic Isotope ¹³F Located Four Neutrons beyond the Proton Drip Line” in 2021 ([2021Ch19](#)). The Coupled Cyclotron Facility at the National Superconducting Cyclotron Laboratory at Michigan State University produced a 69.5 MeV/nucleon secondary ¹³O beam from a primary 150 MeV/nucleon ¹⁶O beam. The ¹³O beam impinged on a 1-mm thick beryllium target after being purified with the A1900 and the radio frequency fragment separators. Charged fragments from the reactions were detected in the high resolution array (HiRA) and the decay energy of ¹³F was measured from the 3p + ¹⁰C events: “The invariant-mass distribution of detected 3p + ¹⁰C events displays a 1.01(27)-MeV-wide peak at a decay energy of 7.06(9) MeV sitting on a broad background. Based on predictions of Fortune and Sherr [...], this peak corresponds to the first 5/2⁺ excited state in ¹³F.”

Adapted from reference ([2023Th03](#))

[2021Ch19](#) R. J. Charity, T. B. Webb, J. M. Elson, D. E. M. Hoff *et al.*, Phys. Rev. Lett. **126**, 132501 (2021).

[2023Th03](#) M. Thoennessen, Int. J. Mod. Phys. E **32**, 2330001 (2023).

Please cite this abstract as: “FRIB Nuclear Data Group, *Discovery of Nuclides Project*, Isotope Database, doi:[10.11578/frib/2279152](https://doi.org/10.11578/frib/2279152)”