

## <sup>9</sup>N

In the 2023 paper “Strong evidence for <sup>9</sup>N and the limits of existence of atomic nuclei” Charity et al. reported the first observation of <sup>9</sup>N ([2023Ch46](#)). The Coupled Cyclotron Facility at the National Superconducting Cyclotron Laboratory at Michigan State University was used to produce a secondary 68.5 MeV <sup>13</sup>O beam which impinged on a 1-mm thick <sup>9</sup>Be target. Charged particles from the reactions were measured with the high resolution array HiRA covering angles between 2.1°–12.4°, and invariant mass spectra of events containing five protons and one  $\alpha$  particle were reconstructed. “We have found strong evidence for the exotic nuclide <sup>9</sup>N produced in the fragmentation of a <sup>13</sup>O beam. The invariant-mass spectrum of detected  $5p + \alpha$  events, each containing an <sup>8</sup>C(g.s.) intermediate state, contains a structure which cannot be explained at the  $\sim 5\sigma$  level by statistical fluctuations of the expected background from other coincident protons liberated in the fragmentation event.”

Adapted from reference ([2024Th02](#))

[2023Ch46](#) R. J. Charity, J. Wylie, S. M. Wang, T. B. Webb *et al.*, Phys. Rev. Lett. **131**, 172501 (2023).

[2024Th02](#) M. Thoennessen, Int. J. Mod. Phys. E **33**, 2430001 (2024).

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