

## <sup>9</sup>He

Seth et al. reported the first observation of <sup>9</sup>He in 1987 in “Exotic Nucleus Helium-9 and its Excited States” (1987Se05). Negative pions from the Los Alamos Meson Physics Facility (LAMPF) bombarded a metallic beryllium target and <sup>9</sup>He was produced in the pion double charge exchange reaction <sup>9</sup>Be( $\pi^-$ ,  $\pi^+$ ). A missing mass spectrum was calculated by measuring the positive pions in a magnetic spectrometer. “...The resulting absolute scale for missing mass leads to the atomic  $Q_0(^9\text{He}(\text{g.s.})) = -29.45 \pm 0.10$  MeV. This Q value corresponds to an atomic mass excess of  $40.80 \pm 0.10$  MeV, which implies that the ground state is unstable against single-neutron decay by  $1.13 \pm 0.10$  MeV.”

The instability of <sup>9</sup>He was demonstrated about twenty years earlier by Cooper, Cerny, and Gatti (1967Co36).

Adapted from reference (2012Th01)

- 1967Co36 S. W. Cosper, J. Cerny, and R. C. Gatti, Phys. Rev. **154**, 1193 (1967).  
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