^{45}Fe

In their paper "First Observation of the $T_z = -7/2$ Nuclei ^{45}Fe and ^{49}Ni", Blank et al. reported the discovery of ^{45}Fe in 1996 at the Gesellschaft für Schwerionenforschung (GSI) in Germany (1996Bl21). A 600 A·MeV ^{58}Ni beam bombarded a 4 g/cm^2 thick beryllium target and isotopes were separated with the projectile-fragment separator FRS. ^{45}Fe was identified by time-of-flight, ΔE, and Bρ analysis. "In the entire Z versus A/Z plot ... only one background event can be identified... This high background suppression enables us to conclude even with only three and five counts on the first observation of ^{45}Fe and ^{49}Ni, respectively." The half-life was estimated to be greater than 350 ns based on the flight time through the FRS. In 1992, the non-observation of ^{45}Fe in a projectile fragmentation experiment had led to the suggestion that ^{45}Fe was probably not stable with respect to particle emission deducing an upper half-life limit of 250 ns (1992Bo37).

Adapted from reference (2010Sc18)

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