## $^{12}C(^{20}Mg,^{20}Mg)$ 1996Ch24,1998Su07

History

| Type | Author | Citation | Literature Cutoff Date |
|---|---|---|---|
| Full Evaluation | J. H. Kelley, G. C. Sheu | ENSDF | 20-June-2019 |

1996Ch24,1997Su04,1998Su07: The ineraction cross section of A=20 nuclides on a $^{12}C$ target was measured at E≈950 MeV/nucleon. The beams were produced by fragmenting 1050 MeV/nucleon $^{36}Ar$ and $^{40}Ar$ beams on thick $^{nat}Be$ targets. The interaction cross sections were determined by measuring the transmission of beam particles through the GSI/FRS fragment separator with a reaction target placed at the F2 midstage of the device.

A Glauber model analysis of the $^{20}Mg$ $\sigma_{int}$=1150 mb *16* cross section suggests $R^{matter}_{r.m.s.}$=2.88 fm *4* or 2.91 fm *5*, depending on the theoretical assumptions (1998Su07). The charge changing cross sections to Na, Ne, F, O, N and C isotopes are found as $\sigma$=5 mb *8*, 123 mb *9*, 29 mb *9*, 127 mb *7*, 46 mb *5* and 146 mb *7*, respectively (1996Ch24). The overall analysis suggests $R^{matter}_{r.m.s.}$=2.90 fm *6* with a thin proton skin with thickness=0.50 fm *28*.

See theoretical analysis in (1997Ki22,1997Kn04,1997Su04,2001Oz04,2011Al11, 2017Ah08,2019Ra09).

### $^{20}Mg$ Levels

| E(level) | Comments |
|---|---|
| 0 | A Glauber model analysis of interaction cross sections for 950 MeV/nucleon A=20 isotopes suggests $^{20}Mg$ has a $R^{matter}_{r.m.s.}$=2.90 fm *6* and a thin proton skin with thickness=0.50 fm *28*. |