**Coulomb excitation** **2007Gi06,1999Pr09,2008Gi09**

History

| Type | Author | Citation | Literature Cutoff Date |
|---|---|---|---|
| Full Evaluation | M. S. Basunia and A. M. Hurst | NDS 134, 1 (2016) | 1-Feb-2016 |

Other: 2007Gi13.

2007Gi06,2007Gi13: Pb($^{26}$Ne,$^{26}$Ne′$\gamma$): $^{26}$Ne was produced by fragmentation of primary $^{40}$Ar beam, E=95 MeV/nucleon, on a $^{9}$Be target; secondary $^{26}$Ne beam, E=54 MeV/nucleon, bombarded a lead target; Particles were identified through event-by event analysis of magnetic rigidity and time-of-flight method; two layers of silicon strip detectors, a layer of Si(Li) detector, 152 Na(Tl) detectors; Measured E$\gamma$, $\gamma\gamma$ coin, deduced B(E2).

1999Pr09: Au($^{26}$Ne,$^{26}$Ne′$\gamma$) – $^{26}$Ne beam on Au target, E($^{26}$Ne)=41.7 MeV/u, $^{26}$Ne beam was produced from a primary beam of $^{40}$Ar, E($^{40}Ar^{12+}$=90 MeV/u); after passing Au, $^{26}$Ne beam was stopped in a cylindrical fast-slow plastic phoswich detector, NSCL NaI(Tl) array; Measured: E$\gamma$, deduced B(E2;$0^+_{gs} \rightarrow 2^+_1$). The E($2^+_1$) level energy for $^{26}$Ne was well understood in the context of 0 $\hbar\omega$ configuration as concluded by 1999Pr09.

2008Gi09: Pb($^{26}$Ne,$^{26}$Ne′$\gamma$): $^{26}$Ne was produced by fragmentation of primary $^{40}$Ar beam, E=95 MeV/u, on a $^{9}$Be target; secondary $^{26}$Ne beam, E=58 MeV/nucleon, bombarded a lead target; Charged particles detected with single-sided silicon strip detectors; Measured E$\gamma$ using 4$\pi$ DALI2 array of 152 NaI(Tl) detectors; Detected neutrons using hodoscope of 29 sets of plastic rods and scintillators. Deduce B(E1) and B(E2) values and studied decay pattern of $^{26}$Ne pygmy states.

## $^{26}$Ne Levels

| E(level) | $J^\pi$[†] | $T_{1/2}$ | L | Comments |
|---|---|---|---|---|
| 0 | $0^+$ | | | |
| 2022 *62* | $2^+$ | 0.60 ps *8* | | B(E2)↑=0.0141 *18*<br>B(E2)↑: From 2007Gi06. Nuclear contribution subtracted. A B(E2)=0.025 *3* (that includes contribution from nuclear excitation) deduced from total cross section=68 mb *8* (2007Gi06) is consistent with earlier value of B(E2)=0.0228 *41* in 1999Pr09.<br>$T_{1/2}$: deduced from B(E2)↑ and adopted 2017.9$\gamma$ properties.<br>$\sigma$=68 mb *8* (2007Gi06); 74 mb *13* (1999Pr09). |
| 3691 | $(2^+)$ | | | $\sigma$=7 mb *4* (2007Gi06).<br>$J^\pi$: measured $\sigma$ is not consistent with the $J^\pi=0^+$, that was proposed in earlier studies. |
| ≈9×10$^3$ | | | 1+2 | B(E1)↑=0.0049 *16* (2008Gi09); B(E2)↑=0.0049 *8* (2008Gi09)<br>E(level): From 2008Gi09. E1 excited pygmy state detected at energies of ≈9 MeV. This state decays by neutron emission to g.s., 1700, 2000 and 3300 levels in $^{25}$Ne with branching ratios of 5% *17-5* to g.s.; 66% *15* to 1700+2000; 35% *9* to 3300 levels, respectively.<br>L: From angular distribution measurements. |

[†] From Adopted Levels.

## $\gamma(^{26}Ne)$

| $E_\gamma$[†] | $E_i$(level) | $J^\pi_i$ | $E_f$ | $J^\pi_f$ | Comments |
|---|---|---|---|---|---|
| 1683 *60* | 3691 | $(2^+)$ | 2022 | $2^+$ | |
| 2022 *62* | 2022 | $2^+$ | 0 | $0^+$ | $E_\gamma$: 1990 keV *12* (1999Pr09). |

[†] From 2007Gi09.

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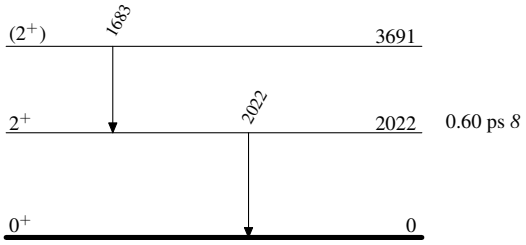
Level Scheme




$^{26}_{10}Ne_{16}$