## Coulomb excitation 2012Ba31

History

| Type | Author | Citation | Literature Cutoff Date |
|---|---|---|---|
| Full Evaluation | Balraj Singh, Huang Xiaolong, and Wang Xianghan | NDS 204,1 (2025) | 30-Jun-2023 |

2012Ba31: 79.0 MeV/nucleon $^{62}$Cr beam in the form of cocktail beam mixed with $^{58}$Cr and $^{60}$Cr. Target=238.4 mg/cm$^2$ $^{209}$Bi. Secondary cocktail beam produced in fragmentation of 130 MeV/nucleon $^{76}$Ge beam on a 423 mg/cm$^2$ $^{9}$Be target followed by selection and purification using A1900 separator at NSCL facility. Scattered particles were identified on an event-by-event basis through time-of- flight and energy loss measurements by S-800 ionization chamber and plastic scintillation detectors. Gamma-rays were detected in coincidence with scattered $^{62}$Cr projectiles using SeGA array of 17, 32-fold segmented Ge detectors surrounding the Coulomb excitation target in front of the S800 spectrograph. Measured Coulomb excitation cross sections and deduced B(E2) values using Winther-Alder theory.

Intermediate energy Coulomb excitation process.

### $^{62}$Cr Levels

| E(level) | $J^\pi$ | $T_{1/2}$ | Comments |
|---|---|---|---|
| 0 | $0^+$ | | |
| 447 *6* | $2^+$ | 100 ps *+19−15* | B(E2)↑=0.1625 *220* (2012Ba31)<br>B(E2) deduced from $\sigma$=377 mb *30* (2012Ba31).<br>$T_{1/2}$: from peak-shape analysis (2012Ba31).<br>B(E2)=0.1605 *+302−246* deduced from half-life.<br>B(E2)=0.1625 *220* gives $T_{1/2}$=99 ps *+15−12*. |

### $\gamma(^{62}Cr)$

| $E_\gamma$ | $E_i$(level) | $J_i^\pi$ | $E_f$ | $J_f^\pi$ |
|---|---|---|---|---|
| 447 *6* | 447 | $2^+$ | 0 | $0^+$ |

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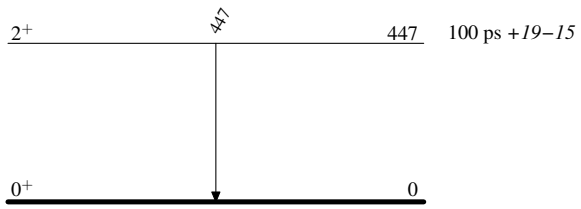
### Level Scheme




$^{62}_{24}Cr_{38}$