^{128}Te(^{48}Ca,4nγ):SD 2007Zh46,2011Mu02

Type	Author	History Citation	Literature Cutoff Date
Update	Balraj Singh	ENSDF	31-Mar-2015

Additional information 1.

2007Zh46: E=209 MeV. Measured Eγ, Iγ, $\gamma\gamma$, $\gamma\gamma(\theta)$(DCO) using GAMMASPHERE array comprised of 100 Compton-suppressed Ge detectors at ATLAS-ANL facility. Deduced three superdeformed bands, experimental evidence for triaxial nature of these bands was not observed. Comparison with cranked relativistic mean-field calculations (CRMF). SD bands in ^{172}Hf were identified by observing $\gamma\gamma$ coincidences between γ rays in SD bands and known transitions up to J=18-20 in the normal-deformed yrast band.

2011Mu02: quadrupole moment measurement for the enhanced deformation band by DSAM and centroid-shift analysis. E=207 MeV. Target=1.0 mg/cm^2 enriched target backed by 15.81 μg/cm^2 layer of Au, thin layer of 70 μg/cm^2 Au was evaporated on to the front side of the target. Measured Eγ, Iγ, $\gamma\gamma$ using GAMMASPHERE array composed of 101 Compton-suppressed Ge detectors at Argonne facility. DSAM and line-shape measurements for the enhanced deformation band. Comparisons with cranked model calculations. The SD band structures in ^{172}Hf are compared to those in ^{175}Hf.

The level scheme is from 2007Zh46, but full details of γ-ray data are not available.

^{172}Hf Levels

While the triaxiality is not ruled out, it remains unclear whether the SD bands observed in ^{172}Hf should be associated with a triaxial SD minimum as suggested by UC (ultimate cranker code) calculations or with a near-prolate SD minimum suggested by the CRMF calculations in ^{175}Hf.

E(level)	J$^\pi$	E(level)	J$^\pi$	E(level)	J$^\pi$	E(level)	J$^\pi$
x[†]	J	10024+x[†]	J+20	5470+y[‡]	J1+12	3833+z[#]	J2+8
776+x[†]	J+2	11356+x[†]	J+22	6563+y[‡]	J1+14	4936+z[#]	J2+10
1589+x[†]	J+4	12753+x[†]	J+24	7712+y[‡]	J1+16	6097+z[#]	J2+12
2447+x[†]	J+6	14212+x[†]	J+26	8914+y[‡]	J1+18	7319+z[#]	J2+14
3356+x[†]	J+8	y[‡]	J1	10156+y[‡]	J1+20	8603+z[#]	J2+16
4317+x[†]	J+10	793+y[‡]	J1+2	11443+y[‡]	J1+22	9951+z[#]	J2+18
5335+x[†]	J+12	1633+y[‡]	J1+4	z[#]	J2	11364+z[#]	J2+20
6414+x[†]	J+14	2519+y[‡]	J1+6	877+z[#]	J2+2		
7553+x[†]	J+16	3451+y[‡]	J1+8	1809+z[#]	J2+4		
8756+x[†]	J+18	4433+y[‡]	J1+10	2795+z[#]	J2+6		

[†] Band(A): SD-1 band. Q(transition)=13.6 *9* (2011Mu02) from DSAM measurements. Percent population=0.7 *2* (2007Zh46).

[‡] Band(B): SD-2 band. Q(transition)=11.6 *10* (2011Mu02) from DSAM measurements. Percent population=0.5 *1* (2007Zh46).

[#] Band(C): SD-3 band. F(τ) curve was obtained for four members of this band, but due to low intensity it could not be fitted well to obtain quadrupole moment. Percent population=0.4 *1* (2007Zh46).

$\gamma(^{172}Hf)$

From $\gamma\gamma(\theta)$(DCO) data, all transitions, except the very weak ones, were found to be stretched quadrupole type. But the values of DCO ratios are not listed by the authors.

No linking transitions between bands were found, thus no indication of wobbling mode in these bands.

Continued on next page (footnotes at end of table)

^{128}Te(^{48}Ca,4nγ):SD 2007Zh46,2011Mu02 (continued)

$\gamma(^{172}Hf)$ (continued)

E_γ	E_i(level)	J_i^π	E_f	J_f^π	E_γ	E_i(level)	J_i^π	E_f	J_f^π
776	776+x	J+2	x	J	1093	6563+y	J1+14	5470+y	J1+12
793	793+y	J1+2	y	J1	1103	4936+z	J2+10	3833+z	J2+8
813	1589+x	J+4	776+x	J+2	1139	7553+x	J+16	6414+x	J+14
840	1633+y	J1+4	793+y	J1+2	1149	7712+y	J1+16	6563+y	J1+14
858	2447+x	J+6	1589+x	J+4	1161	6097+z	J2+12	4936+z	J2+10
877	877+z	J2+2	z	J2	1202	8914+y	J1+18	7712+y	J1+16
886	2519+y	J1+6	1633+y	J1+4	1203	8756+x	J+18	7553+x	J+16
909	3356+x	J+8	2447+x	J+6	1222	7319+z	J2+14	6097+z	J2+12
932	3451+y	J1+8	2519+y	J1+6	1242†	10156+y	J1+20	8914+y	J1+18
932	1809+z	J2+4	877+z	J2+2	1268	10024+x	J+20	8756+x	J+18
961	4317+x	J+10	3356+x	J+8	1284	8603+z	J2+16	7319+z	J2+14
982	4433+y	J1+10	3451+y	J1+8	1287†	11443+y	J1+22	10156+y	J1+20
986	2795+z	J2+6	1809+z	J2+4	1332	11356+x	J+22	10024+x	J+20
1018	5335+x	J+12	4317+x	J+10	1348	9951+z	J2+18	8603+z	J2+16
1037	5470+y	J1+12	4433+y	J1+10	1397	12753+x	J+24	11356+x	J+22
1038	3833+z	J2+8	2795+z	J2+6	1413	11364+z	J2+20	9951+z	J2+18
1079	6414+x	J+14	5335+x	J+12	1459	14212+x	J+26	12753+x	J+24

† Placement of transition in the level scheme is uncertain.

Legend

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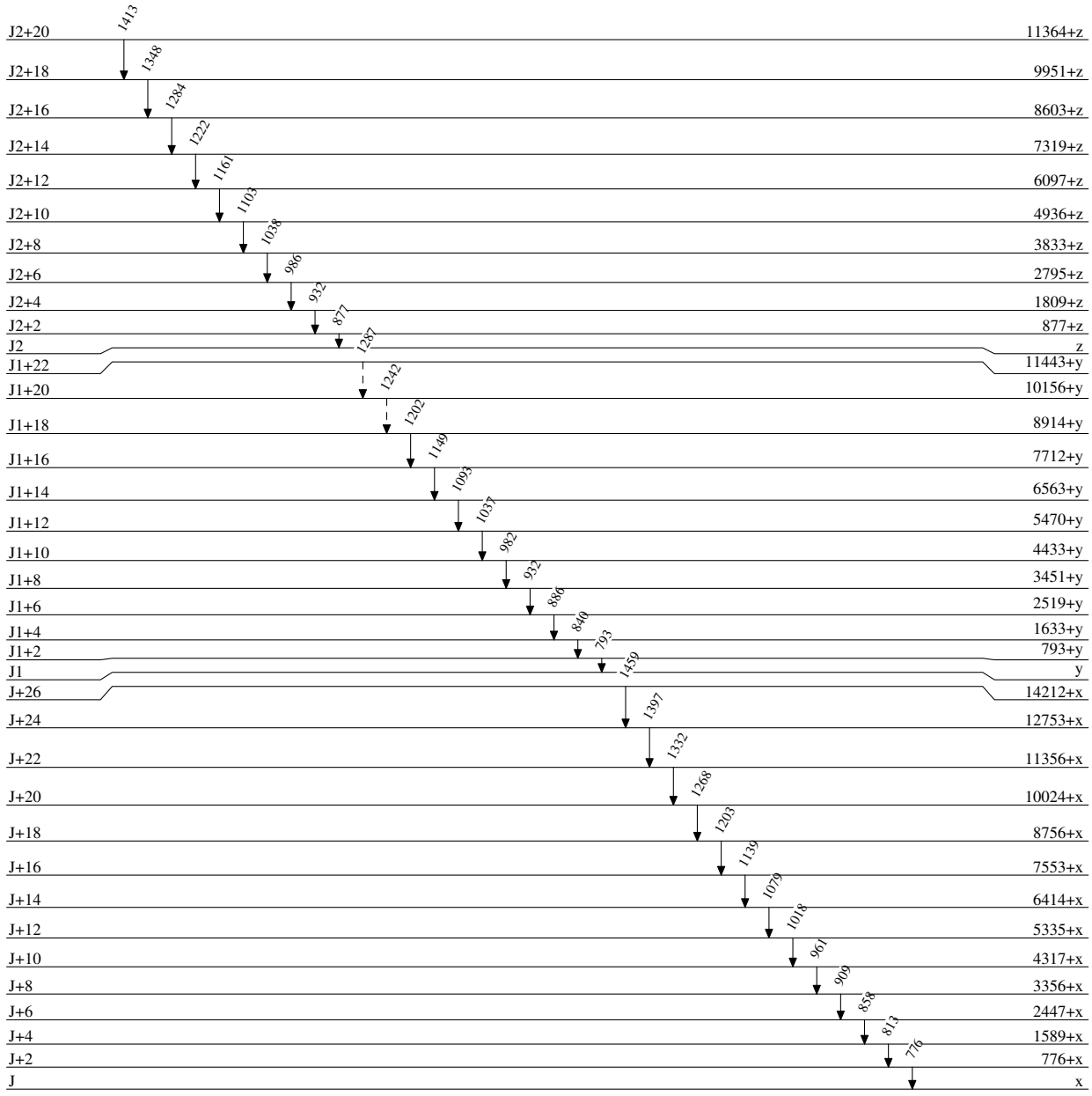
Level Scheme

γ Decay (Uncertain)



$^{172}_{72}Hf_{100}$

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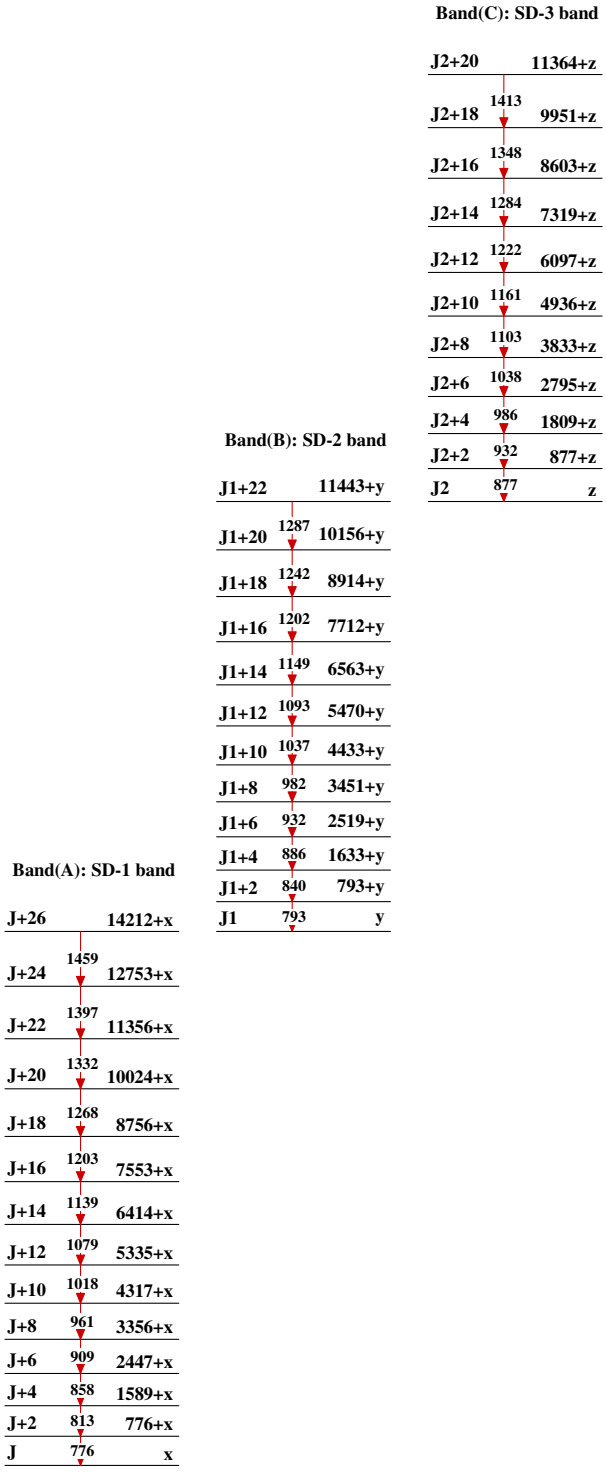

$^{172}_{72}Hf_{100}$