# TERM VALUES OF $f^4$—ELECTRON CONFIGURATION A CORRECTION

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In our calculations (Rao, 1950) of the term values of the $f^4$-electron configuration by Slater's classical method, an error has crept in, in reading Condon's tables for $a^k$ s and $b^k$ s for $f$ electrons. The denominator is used only for the particular combination against which it is given whereas it is common to all the others also. Since in these calculations Condon and Shortley's $F_k$'s are used instead of Slater's $F^k$'s where $F_k = F^k/D_k$ this common denominator can be cancelled for convenience.

This error has been recently pointed out by Racah (1952); a recalculation of the values has been done with this correction and the corrected values are given in the following table. The correct values are obtained by merely cancelling the common denominator in our prevous values.

TABLE I

| *Term* | *Value* |
|---|---|
| $^5I$ | $^6F_0 - 95F_2 - 240F_4 - 1079F_6$ |
| $^5G$ | $^6F_0 - 40F_2 - 174F_4 - 2080F_6$ |
| $^5F$ | $^6F_0 - 60F_2 - 198F_4 - 1716F_6$ |
| $^5D$ | $^6F_0 - 5F_2 - 132F_4 - 2717F_6$ |
| $^5S$ | $^6F_0 - 60F_2 - 198F_4 - 1716F_6$ |
| $^3M$ | $^6F_0 - 55F_2 - 150F_4 - 211F_6$ |
| $^3L$ | $^6F_0 - 70F_2 - 105F_4 - 316F_6$ |
| $(^3K)$ | $^6F_0 - 43F_2 - 119{\cdot}5F_4 - 526F_6$ |
| $(^3I)$ | $^6F_0 - 15F_2 - 81F_4 - 1065F_6$ |
| $(^3H)$ | $^6F_0 - 11F_2 - 51F_4 - 711{\cdot}5F_6$ |
| $(^3G)$ | $^6F_0 - 22F_2 - 69{\cdot}33F_4 - 1058F_6$ |
| $(^3F)$ | $^6F_0 - 11F_2 - 70{\cdot}25F_4 - 596F_6$ |
| $(^3D)$ | $^6F_0 - 3F_2 - 85{\cdot}5F_4 - 1170F_6$ |
| $(^3P)$ | $^6F_0 + 6{\cdot}33F_2 - 9{\cdot}66F_4 - 957{\cdot}66F_6$ |
| $^1N$ | $^6F_0 - 25F_2 - 86F_4 - F_6$ |
| $(^1L)$ | $^6F_0 - 43F_2 - 70{\cdot}5F_4 + 104F_6$ |
| $^1K$ | $^6F_0 - 46F_2 - 23F_4 + 148F_6$ |
| $(^1I)$ | $^6F_0 + 0{\cdot}33F_2 + 29F_4 - 192{\cdot}33F_6$ |
| $(^1H)$ | $^6F_0 + 22F_2 - 83{\cdot}5F_4 - 71F_6$ |
| $(^1G)$ | $^6F_0 + 5F_2 - 20{\cdot}25F_4 - 379F_6$ |
| $^1F$ | $^6F_0 + 8F_2 + 74F_4 - 1324F_6$ |
| $(^1D)$ | $^6F_0 + 17F_2 + 22{\cdot}5F_4 - 536{\cdot}5F_6$ |
| $(^1S)$ | $^6F_0 + 110F_2 + 111F_4 + 104F_6$ |

## REFERENCES

Racah, G., 1952, *Curr. Sci.*, **21**, 67.

Rao, K. S., 1950, *Ind. J. Phys.*, **24**, 51.