Erratum: Appraising nuclear-octupole-moment contributions to the hyperfine structures in ^{211}Fr [Phys. Rev. A **92, 052506 (2015)]**

B. K. Sahoo

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In the original paper, I had wrongly given the expression for the magnetic octupole hyperfine structure constant C as

$$C = -\Omega_I \frac{\langle J || \tilde{T}_e^{(3)} || J \rangle}{\sqrt{J(J+1)(2J+1)}}, \quad (1)$$

where $\Omega = \Omega_I \mu_N$ is the nuclear magnetic octupole moment with the nuclear magneton μ_N and $\tilde{T}_e^{(3)} = \mu_N T_e^{(3)}$ is the effective electronic tensor operator. However, the correct expression is given by [1]

$$\begin{aligned} C &= -\Omega_I \begin{pmatrix} J & 3 & J \\ -J & 0 & J \end{pmatrix} \langle J || \tilde{T}_e^{(3)} || J \rangle \\ &= -\Omega_I \sqrt{\frac{J(J-1)(2J-1)}{(J+1)(J+2)(2J+1)(2J+3)}} \langle J || \tilde{T}_e^{(3)} || J \rangle. \end{aligned} \quad (2)$$

Similarly, the corresponding electronic tensor operator was mentioned as

$$T_e^{(3)} = \sum_{j,q} t_q^{(3)}(r_j) = \sum_{j,q} -ie\sqrt{8\pi/3} r_j^{-4} \alpha_j \cdot \mathbf{Y}_{3q}^{(0)}(\mathbf{r}_j), \quad (3)$$

instead of the actual expression,

$$T_e^{(3)} = \sum_{j,q} t_q^{(3)}(r_j) = -\sqrt{\frac{4}{3}} ie \sum_{j,q} r_j^{-4} \alpha_j \cdot \mathbf{C}_q^{(3)}(\hat{\mathbf{r}}_j) \quad (4)$$

for the Racah tensor $C_q^{(3)}(\hat{r})$ with rank three.

Although the expression for $T_e^{(3)}$ was wrongly typed, the calculations were carried out using the correct single-particle matrix element expression as

$$\langle \kappa m | t_q^{(3)} | \kappa' m' \rangle = -\frac{1}{3} \langle -\kappa m | C_q^{(3)} | \kappa' m' \rangle (\kappa + \kappa') \int_0^\infty dr \frac{1}{r^4} (P_\kappa Q_{\kappa'} + P_{\kappa'} Q_\kappa), \quad (5)$$

which is given by Eq. (21) of the original paper. Similarly, C values were estimated using Eq. (2) rather than Eq. (1). Therefore, the reported C/Ω_I values in the paper are not affected by the above typographical errors.

[1] C. Schwartz, [Phys. Rev. **97**, 380 \(1955\)](#).