

$$\begin{aligned}
& \langle ZS_c(ZS) + {}_c(1S)ZS + {}_c(XS)ZS + \\
& \quad ZS_cZ + 1S1Z + XSXZ \rangle \bar{y}e + \\
& \langle {}_c(ZS)1S + 1S_c(1S) + {}_c(XS)1S + \\
& \quad ZS Z1 + 1S_cX + XSX1 \rangle \bar{1}e + \\
& \langle {}_c(ZS)XS + {}_c(1S)XS + XS_c(XS) + \\
& \quad ZS ZX + 1S1X + XS_cX \rangle \bar{1}e + \\
& ({}_cZS + {}_c1S + {}_cXS)(\bar{y}ZS + \bar{1}1S + \bar{1}XS) + \\
& ({}_cZS + {}_c1S + {}_cXS)(\bar{y}Z + \bar{1}1 + \bar{1}X) \rangle =
\end{aligned}$$

$$\begin{aligned}
& \langle ({}_cZS + {}_c1S + {}_cXS + \\
& \quad ZSZC + 1S1C + XSXC)(ZS+Z) \bar{y} + \\
& \quad ({}_cZS + {}_c1S + {}_cXS + \\
& \quad ZSZC + 1S1C + XSXC)(1S+1) \bar{1} + \\
& \quad ({}_cZS + {}_c1S + {}_cXS + \\
& \quad ZSZC + 1S1C + XSXC)(XS+X) \bar{1} \rangle = \\
& \langle (\bar{1}S \cdot \bar{1}S + \bar{1}S \cdot \bar{1}e)(\bar{1}S + \bar{1}) \rangle
\end{aligned}$$

(consider)

NOTE 393(7): Check the Note 393(5), Eq. (5)

2) By isotropy:

$$\langle \underline{s}_i \rangle = \underline{0} \quad - (2)$$

So:

$$\langle s_x \rangle = \langle s_y \rangle = \langle s_z \rangle = 0 \quad - (3)$$

Therefore:

$$\langle (s_x \underline{i} + s_y \underline{j} + s_z \underline{k})(s_x^2 + s_y^2 + s_z^2) \rangle = 0 \quad - (4)$$

Also:

$$\begin{aligned} & \langle x^2 s_x + x y s_y + x z s_z \rangle \\ &= \langle y x s_x + y^2 s_y + s_z s_z \rangle \quad - (5) \\ &= \langle 2 x s_x + 2 y s_y + 2 s_z^2 \rangle = 0 \end{aligned}$$

and

$$\begin{aligned} & \langle (s_x)^2 s_x + s_x (s_y)^2 + s_x (s_z)^2 \rangle \quad - (6) \\ &= \langle s_y (s_x)^2 + (s_y)^2 s_y + s_y (s_z)^2 \rangle \\ &= \langle s_z (s_x)^2 + s_z (s_y)^2 + (s_z)^2 s_z \rangle = 0 \end{aligned}$$

$$\begin{aligned} \text{So:} & \langle (\underline{r} + \underline{s}_i)(2 \underline{r} \cdot \underline{s}_i + \underline{s}_i \cdot \underline{s}_i) \rangle \\ &= \langle (x \underline{i} + y \underline{j} + z \underline{k})(s_x^2 + s_y^2 + s_z^2) \rangle \\ &= \underline{r} \langle \underline{s}_i \cdot \underline{s}_i \rangle \quad \checkmark \quad - (7) \end{aligned}$$

Q.E.D.