then k would be reduced to 3·6. It seems likely, however, that any change in the wavefunctions that would increase the value of $\langle 0 \| \mathscr{M}(\mathrm{E2}) \| 2 \rangle$ would also increase the value of $\langle 0 \| \mathcal{O}^2 \| 2 \rangle$, thus leading to a value of k intermediate between 3·6 and 4·4.

These calculations suggest that k for ^{18}O should be large compared with unity, and probably about 4. The reason why Ball *et al.* (1982) regarded 1·5 as an approximate upper limit for k seems to be due to confusion regarding the meaning or definition of k. Many authors, including Ball *et al.*, have taken k to be equal to

$$k' = \sigma_{-2}/(3\cdot 5\, A^{5/3}\, \mu\mathrm{b\, MeV^{-1}})\,. \tag{18}$$

The denominator in (18) is the hydrodynamic model value of σ_{-2}, as empirically renormalized by Levinger (1957) in order to fit experimental values of σ_{-2} for nuclei with $A \gtrsim 20$, so that it is not surprising that $k' \approx 1$ for ^{18}O; the results of Woodworth *et al.* (1979) give $k' = 1\cdot 26$. But $k = k'$ implies that the parameter η_0 has its hydrodynamic value, namely $\frac{4}{3}\pi^{\frac{1}{2}}\langle 0 \| \mathscr{M}(\mathrm{E2}) \| 2 \rangle / ZeR_0^2$, with $R_0 = 1\cdot 2\, A^{1/3}$ fm (Häusser *et al.* 1973), and it is not at all obvious that this should be a good approximation for ^{18}O.

Use of $k = 4$ in the analysis of the Coulomb excitation measurements on ^{18}O would increase the derived value of $B(\mathrm{E2}; 0^+ \to 2^+)$. For example, the published value of 39·0 e^2 fm^4 of Fewell *et al.* (1979) (for $k = 1$ and destructive interference, as implied by the LSF wavefunctions) would increase to 47·1 e^2 fm^4 for $k = 4$ (Kuehner *et al.* 1982), in good agreement with the adopted value 47·6 e^2 fm^4 of Ball *et al.* The $k = 1$ value of 45·3 e^2 fm^4 of Flaum *et al.* (1977) is already consistent within experimental errors with the value of Ball *et al.*, but Flaum *et al.* found that their derived value of $B(\mathrm{E2}; 0^+ \to 2^+)$ was very insensitive to the value of k, being only 0·7 e^2 fm^4 less for $k = 0$. Thus, the use of $k = 4$ in the Coulomb excitation analyses would seem to make the derived values of $B(\mathrm{E2}; 0^+ \to 2^+)$ more consistent among themselves, and also with the DBLA value obtained by Ball *et al.*

Changing k in the analysis of Fewell *et al.* (1979) also changes the derived value of Q_{2^+} from $-2\cdot 3$ $e$fm^2 for $k = 1$ to 1·0 $e$fm^2 for $k = 4$ (Kuehner *et al.* 1982). The Q_{2^+} value of Flaum *et al.* (1977) is more sensitive to k, and would probably also be near zero for $k = 4$. Most model calculations have given $Q_{2^+} \approx -5$ $e$fm^2 (see Table 1 of Fewell *et al.*). Vold *et al.* (1977) have pointed out that values of Q_{2^+} near zero can be obtained with the LSF model provided the collective states belong to a triaxially deformed band rather than one with axial symmetry. Positive values of Q_{2^+} have been predicted in calculations based on energy-weighted sum rules (Koo 1979; Koo and Tassie 1979).

We note that the crude wavefunctions (14) used here for ^{20}Ne give $k(^{20}\mathrm{Ne}) \approx 2\cdot 3$ (assuming $E_g - E_0 \approx 20$ MeV). Such a moderately large value of k could contribute to the discrepancy between calculated and experimental values of $Q_{2^+}(^{20}\mathrm{Ne})$, which was pointed out for example by Spear (1981), since the experimental values were based on the assumption that $k = 1$.

In summary, these calculations and estimates suggest that $k(^{18}\mathrm{O}) \approx 4$, which is sufficiently large to remove the discrepancy between values of $B(\mathrm{E2}; 0^+ \to 2^+)$ for ^{18}O derived from Coulomb excitation and from other measurements.

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