

Abstract Submitted  
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**The  $B(E2; 4_1^+ \rightarrow 2_1^+)/B(E2; 2_1^+ \rightarrow 0_1^+)$  Ratio in Even-Even Nuclei**  
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We considered 207 even-even nuclei throughout the chart of nuclides for which the NNDC Tables had data on the energies and lifetimes of the  $2_1^+$  and  $4_1^+$  states. Using these data we calculated for each nucleus the electric quadrupole transition strengths  $B(E2; 4_1^+ \rightarrow 2_1^+)$  and  $B(E2; 2_1^+ \rightarrow 0_1^+)$ , as well as their ratio. The internal conversion coefficients were obtained by using the NNDC HSICC calculator. For each nucleus we plotted the B(E2) ratio against A, N, and Z. We found that for close to 90% of the nuclei considered the ratio had values between 0.5 and 2.5. Most of the outliers had magic numbers of protons or neutrons. Our ratio results were compared with the theoretical predictions for this ratio by different models—10/7 in the rotational model and 2 in the simplest vibrational model. In the rotational regions (for  $150 < A < 180$  and  $A > 220$ ) the ratios were indeed close to 10/7. For the few nuclei thought to be vibrational the ratios were usually less than 2. Otherwise, we got a wide scatter of ratio values. Hence other models, including the  $N_p N_n$  scheme, must be considered in interpreting these results.

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