On Isoscalar magnetic moments of excited states YITZHAK SHARON, LARRY ZAMICK, SEAN YEAGER, Rutgers University — We first review the isoscalar magnetic moments of odd A mirror pairs of closed major shells plus or minus one nucleon. We note systematic deviations in experiment-Schmidt. For j=l+1/2 the deviation is positive (stretch) but for j=l-1/2 it is negative (jack-knife). But the main emphasis is on 2+ states of even-even N=Z nuclei which have isospin T=0 and hence isoscalar moments. This work is stimulated by recent measurements by Speidel's and Koller's group on 2+ states 32S,36Ar and 44Ti and on 4+ in 20Ne. The measured values of g factors for all these nuclei are very close to 0.5, which is also the rotational value for a K=0 band. But we also note that we get close to 0.5 in the single j shell model for intermediate and heavy nuclei. In single j the expression for j=l+1/2 is g=0.5+0.38/(2l+1) while for j=l-1/2 it is 0.5-0.38/(2l+1). Hence from a measured value close to 0.5 one cannot conclude that the rotational model or the single j shell model are approximately correct, or whether one needs or does not need intruder state admixtures. Odd-odd nuclei are also considered where the story is similar. For closed major shell plus or minus one nucleon there are no first order corrections and the second order ones are due to the tensor force.

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