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**On Isoscalar magnetic moments of excited states**  
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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 de-  
viation is positive (stretch) but for  $j=l-1/2$  it is negative (jackknife).  
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  
 $^{32}\text{S}$ ,  $^{36}\text{Ar}$  and  $^{44}\text{Ti}$  and on  $4+$  in  $^{20}\text{Ne}$ . 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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