

Abstract Submitted  
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**The 4x4 spin 1/2 representation in electron polarization in a magnetic field** KESHAV SHRIVASTAVA, University of Hyderabad — We introduce a 4x4 spin representation for spin 1/2. There are two spin orientations for a given value of  $g_+$  and two for  $g_-$  which arise for two signs of spin. This theory produces factors which affect the product  $m^*g^*$  so that if these factors are not taken into account, much larger values of the electron mass than those of the electron mass in a band arise. This predicted phenomenon is in accord with the experimental data. Similarly we find that factors arise in cyclotron frequency which affect the magnetoresistance and hence the  $g$  values. Accordingly, large  $g$  values are measured in the experimental data. When our factors are taken into account, the  $g$  values compare well with band values. The  $g^*=g_{\pm} - \delta$  describes the shift due to many-body interactions.

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