Detection of Antiferromagnetism by Neutron Diffraction

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ORNL Graphite Reactor
1943-1963

Cliff Shull & Ernie Wollan 1949
Neutron Diffraction by Paramagnetic and Antiferromagnetic Substances

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Table II. Comparison between observed MnO antiferromagnetic intensities and those calculated for various models of magnetic orientation with respect to crystallographic axes.

<table>
<thead>
<tr>
<th></th>
<th>(100)</th>
<th>(111)</th>
<th>∥[111]</th>
<th>(neutrons/min)</th>
</tr>
</thead>
<tbody>
<tr>
<td>(111)</td>
<td>1038</td>
<td>0</td>
<td>1560</td>
<td>1072</td>
</tr>
<tr>
<td>(311)</td>
<td>460</td>
<td>675</td>
<td>...</td>
<td>308</td>
</tr>
<tr>
<td>(331)</td>
<td>129</td>
<td>109</td>
<td>...</td>
<td>132</td>
</tr>
<tr>
<td>(511)</td>
<td>54</td>
<td>24</td>
<td>...</td>
<td>70</td>
</tr>
</tbody>
</table>

Wollan & Koehler Phys. Rev. 1955, 100(2), 545-563. $\text{La}_{1-x}\text{CaxMnO}_3$ magnetic structures.