Structures in $Fd\bar{3}m$

- Diamond
- Spinel
- Pyrochlore
- Inverse Spinel

Point Group Notation

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<table>
<thead>
<tr>
<th>Point Group</th>
<th>Primary</th>
<th>Secondary</th>
<th>Tertiary</th>
</tr>
</thead>
<tbody>
<tr>
<td>2mm</td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>mm2</td>
<td></td>
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<tr>
<td>p2mm OR Pmm2</td>
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</tbody>
</table>

This also explains why in 2D we have $2mm$ but in 3D it's $mm2$. 
# Space Group Notation

<table>
<thead>
<tr>
<th>Lattice</th>
<th>Symmetry directions (position in Hermann–Mauguin symbol)</th>
<th>Primary</th>
<th>Secondary</th>
<th>Tertiary</th>
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</thead>
<tbody>
<tr>
<td>Orthorhombic</td>
<td>[h0l] [h0l] [h0l]</td>
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<td>Rhombohedral</td>
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<tr>
<td>Hexagonal</td>
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<td>Cubic</td>
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**Pnma (#62)**

\[abc \rightarrow ab'c'\]

\[n = \frac{1}{2}(b+c)\text{ with glide } m_{\perp} a (= b')\]

\[m = \text{mirror plane normal to } b (= c')\]

\[a = \text{translation along } a (= b'); \text{ thus, it is now } b\text{ glide. Reflection plane is normal to } c (= a')\]

New notation: **Pbnm**