Contents of Lecture Course

1. **Symmetry elements and point groups**
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   1.2. Group concepts
   1.3. Classification of point groups, including the Platonic Solids
   1.4. Finding the point group that a molecule belongs to

2. **Group representations**
   2.1. An intuitive approach
   2.2. The great orthogonality theorem (GOT)
   2.3. Theorems about irreducible representations
   2.4. Basis functions
   2.5. Relation between representation theory and quantum mechanics
   2.6. Character tables and how to use them
   2.7. Examples: symmetry of physical properties, tensor symmetries

3. **Molecular Orbitals and Group Theory**
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5. **Electron bands in solids**
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   5.3. The group of the wave vector
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6. **The full rotation group**
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