4.1 Irreducible Tensor Operators

We assume the symmetry group is $C_{3v}$, which is the symmetry group of the body shown in the figure.

- Show that $C_{3v}$ is isomorphic to $P_3$.
- Decompose linear momentum $p = (p_x, p_y, p_z)$ and angular momentum $L = r \times p$ into irreducible tensor operators for $C_{3v}$.

4.2 Compatibility Relations

Verify the compatibility relations given in class for $P_3$ and its subgroups.