

## Direct Products 11

### The Full Rotation Group ( $SU_2$ and $R_3$ )

$$\begin{aligned}\Gamma^{(j)} \times \Gamma^{(j')} &= \Gamma^{(j+j')} + \Gamma^{(j+j'-1)} + \dots + \Gamma^{(|j-j'|)} \\ \Gamma^{(j)} \times \Gamma^{(j)} &= \Gamma^{(2j)} + \Gamma^{(2j-2)} + \dots + \Gamma^{(0)} + [\Gamma^{(2j-1)} + \dots + \Gamma^{(1)}]\end{aligned}$$