

Character Table 12**The Full Rotation Group (SU_2 and R_3)**

$$\chi^{(j)}(\phi) = \begin{cases} \frac{\sin\left(j + \frac{1}{2}\right)\phi}{\sin\frac{1}{2}\phi} & \phi \neq 0 \\ 2j+1 & \phi = 0 \end{cases}$$

Notation: Representation labelled $\Gamma^{(j)}$ with $j = 0, 1/2, 1, 3/2, \dots, \infty$, for R_3 j is confined to integral values (and written l or L) and the labels $S \equiv \Gamma^{(0)}$, $P \equiv \Gamma^{(1)}$, $D \equiv \Gamma^{(2)}$, etc. are used.