

**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.