

Coordinates

$$\text{Co} : (\frac{1}{3}, \frac{2}{3}, \frac{1}{6}), (1, 1, \frac{1}{2}), (\frac{2}{3}, \frac{1}{3}, \frac{5}{6})$$

$$\text{O} : (0, 0, 0.239587), (\frac{2}{3}, \frac{1}{3}, 0.09374633), (\frac{2}{3}, \frac{1}{3}, 0.57292033), (\frac{1}{3}, \frac{2}{3}, 0.42707967), (\frac{1}{3}, \frac{2}{3}, 0.90625367), (0, 0, 0.760413)$$

$$\text{Li} : (0, 0, 0), (\frac{2}{3}, \frac{1}{3}, \frac{1}{3}), (\frac{1}{3}, \frac{2}{3}, \frac{2}{3})$$

$$\text{Reflections} : (-2, 1, 0)$$

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$$\begin{aligned} F_{hkl} &= f_{\text{Co}}(e^{2\pi i(\frac{h}{3} + \frac{2k}{3} + \frac{l}{6})} + e^{2\pi i(h+k+\frac{1}{2})} + e^{2\pi i(\frac{2h}{3} + \frac{k}{3} + \frac{5l}{6})}) \\ &\quad + f_{\text{O}}(e^{2\pi i(0+0+\frac{0.239587 \cdot l}{1})} + e^{2\pi i(\frac{2h}{3} + \frac{k}{3} + \frac{0.09374633 \cdot l}{1})} + e^{2\pi i(\frac{2h}{3} + \frac{k}{3} + \frac{0.57292033 \cdot l}{1})} + e^{2\pi i(\frac{h}{3} + \frac{2k}{3} + \frac{0.42707967 \cdot l}{1})} \\ &\quad + e^{2\pi i(\frac{h}{3} + \frac{2k}{3} + \frac{0.90625367 \cdot l}{1})} + e^{2\pi i(0+0+\frac{0.760413 \cdot l}{1})}) \\ &\quad + f_{\text{Li}}(e^{2\pi i(0+0+0)} + e^{2\pi i(\frac{2h}{3} + \frac{k}{3} + \frac{l}{3})} + e^{2\pi i(\frac{h}{3} + \frac{2k}{3} + \frac{2l}{3})}) \\ &= f_{\text{Co}}(e^{2\pi i(\frac{h}{3} + \frac{2k}{3} + \frac{l}{6})} + e^{2\pi i(h+k+\frac{1}{2})} + e^{2\pi i(\frac{2h}{3} + \frac{k}{3} + \frac{5l}{6})}) \\ &\quad + f_{\text{O}}(e^{2\pi i(\frac{0.239587 \cdot l}{1})} + e^{2\pi i(\frac{2h}{3} + \frac{k}{3} + \frac{0.09374633 \cdot l}{1})} + e^{2\pi i(\frac{2h}{3} + \frac{k}{3} + \frac{0.57292033 \cdot l}{1})} + e^{2\pi i(\frac{h}{3} + \frac{2k}{3} + \frac{0.42707967 \cdot l}{1})} \\ &\quad + e^{2\pi i(\frac{h}{3} + \frac{2k}{3} + \frac{0.90625367 \cdot l}{1})} + e^{2\pi i(\frac{0.760413 \cdot l}{1})}) \\ &\quad + f_{\text{Li}}(e^{2\pi i(0)} + e^{2\pi i(\frac{2h}{3} + \frac{k}{3} + \frac{l}{3})} + e^{2\pi i(\frac{h}{3} + \frac{2k}{3} + \frac{2l}{3})}) \end{aligned}$$

$$\begin{aligned}
F_{-210} &= f_{Co}(e^{2\pi i(\frac{-2}{3} + \frac{2 \cdot 1}{3} + \frac{0}{6})} + e^{2\pi i(-2+1+\frac{0}{2})} + e^{2\pi i(\frac{2 \cdot -2}{3} + \frac{1}{3} + \frac{5 \cdot 0}{6})}) \\
&\quad + f_O(e^{2\pi i(0+0+\frac{0.239587 \cdot 0}{1})} + e^{2\pi i(\frac{2 \cdot -2}{3} + \frac{1}{3} + \frac{0.09374633 \cdot 0}{1})} + e^{2\pi i(\frac{2 \cdot -2}{3} + \frac{1}{3} + \frac{0.57292033 \cdot 0}{1})} + e^{2\pi i(\frac{-2}{3} + \frac{2 \cdot 1}{3} + \frac{0.42707967 \cdot 0}{1})}) \\
&\quad + e^{2\pi i(\frac{-2}{3} + \frac{2 \cdot 1}{3} + \frac{0.90625367 \cdot 0}{1})} + e^{2\pi i(0+0+\frac{0.760413 \cdot 0}{1})}) \\
&\quad + f_{Li}(e^{2\pi i(0+0+0)} + e^{2\pi i(\frac{2 \cdot -2}{3} + \frac{1}{3} + \frac{0}{3})} + e^{2\pi i(\frac{-2}{3} + \frac{2 \cdot 1}{3} + \frac{2 \cdot 0}{3})}) \\
&= f_{Co}(e^{2\pi i(\frac{-2}{3} + \frac{2 \cdot 1}{3} + \frac{0}{6})} + e^{2\pi i(-2+1+\frac{0}{2})} + e^{2\pi i(\frac{2 \cdot -2}{3} + \frac{1}{3} + \frac{5 \cdot 0}{6})}) \\
&\quad + f_O(e^{2\pi i(\frac{0.239587 \cdot 0}{1})} + e^{2\pi i(\frac{2 \cdot -2}{3} + \frac{1}{3} + \frac{0.09374633 \cdot 0}{1})} + e^{2\pi i(\frac{2 \cdot -2}{3} + \frac{1}{3} + \frac{0.57292033 \cdot 0}{1})} + e^{2\pi i(\frac{-2}{3} + \frac{2 \cdot 1}{3} + \frac{0.42707967 \cdot 0}{1})}) \\
&\quad + e^{2\pi i(\frac{-2}{3} + \frac{2 \cdot 1}{3} + \frac{0.90625367 \cdot 0}{1})} + e^{2\pi i(\frac{0.760413 \cdot 0}{1})}) \\
&\quad + f_{Li}(e^{2\pi i(0)} + e^{2\pi i(\frac{2 \cdot -2}{3} + \frac{1}{3} + \frac{0}{3})} + e^{2\pi i(\frac{-2}{3} + \frac{2 \cdot 1}{3} + \frac{2 \cdot 0}{3})}) \\
&= f_{Co}(e^{2\pi i(0)} + e^{2\pi i(-1)} + e^{2\pi i(-1)}) \\
&\quad + f_O(e^{2\pi i(0)} + e^{2\pi i(-1)} + e^{2\pi i(-1)} + e^{2\pi i(0)} \\
&\quad + e^{2\pi i(0)} + e^{2\pi i(0)}) \\
&\quad + f_{Li}(e^{2\pi i(0)} + e^{2\pi i(-1)} + e^{2\pi i(0)}) \\
&= f_{Co}(1+1+1) \\
&\quad + f_O(1+1+1+1+1+1) \\
&\quad + f_{Li}(1+1+1) \\
&= 3f_{Co} + 6f_O + 3f_{Li}
\end{aligned}$$
