$$H_{57} = \begin{bmatrix} -6\,\mu + U & 0 & -\left(\sqrt{3}\,t\right) & 0 \\ 0 & -6\,\mu + 2\,U & -\left(\sqrt{2}\,t\right) & 0 \\ -\left(\sqrt{3}\,t\right) & -\left(\sqrt{2}\,t\right) & -6\,\mu + 2\,U & 2\,t \\ 0 & 0 & 2\,t & -6\,\mu + 2\,U \end{bmatrix}$$