

Particle spectrograph

Wave operator and propagator

xAct`PSALter`Private`GraphicsCollage[

$$\left\{ \begin{array}{l} \omega_{0+}^{\#1} \dagger \\ f_{0+}^{\#1} \dagger \\ f_{0+}^{\#2} \dagger \\ \omega_{0-}^{\#1} \dagger \end{array} \right. \begin{array}{|c|c|c|c|} \hline \omega_{0+}^{\#1} & f_{0+}^{\#1} & f_{0+}^{\#2} & \omega_{0-}^{\#1} \\ \hline 6k^2 r_3 & 0 & 0 & 0 \\ \hline 0 & 0 & 0 & 0 \\ \hline 0 & 0 & 0 & 0 \\ \hline 0 & 0 & 0 & k^2 r_2 + t_2 \\ \hline \end{array} \right. ,$$

$$\text{Join} \left[\begin{array}{l} \omega_{1+}^{\#1} \dagger^{\alpha\beta} \\ \omega_{1+}^{\#2} \dagger^{\alpha\beta} \\ f_{1+}^{\#1} \dagger^{\alpha\beta} \\ \omega_{1-}^{\#1} \dagger^{\alpha} \\ \omega_{1-}^{\#2} \dagger^{\alpha} \\ f_{1-}^{\#1} \dagger^{\alpha} \\ f_{1-}^{\#2} \dagger^{\alpha} \end{array} \begin{array}{|c|c|c|c|c|c|c|c|} \hline \omega_{1+}^{\#1} \alpha\beta & \omega_{1+}^{\#2} \alpha\beta & f_{1+}^{\#1} \alpha\beta & \omega_{1-}^{\#1} \alpha & \omega_{1-}^{\#2} \alpha & f_{1-}^{\#1} \alpha & f_{1-}^{\#2} \alpha \\ \hline \frac{2t_2}{3} & \frac{\sqrt{2}t_2}{3} & \frac{1}{3}i\sqrt{2}kt_2 & 0 & 0 & 0 & 0 \\ \hline \frac{\sqrt{2}t_2}{3} & \frac{t_2}{3} & \frac{ikt_2}{3} & 0 & 0 & 0 & 0 \\ \hline -\frac{1}{3}i\sqrt{2}kt_2 & -\frac{1}{3}ikt_2 & \frac{k^2t_2}{3} & 0 & 0 & 0 & 0 \\ \hline 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ \hline 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ \hline 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ \hline 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ \hline \end{array} \right. ,$$

$$\left. \begin{array}{l} \omega_{2+}^{\#1} \dagger^{\alpha\beta} \\ f_{2+}^{\#1} \dagger^{\alpha\beta} \\ \omega_{2-}^{\#1} \dagger^{\alpha\beta\chi} \end{array} \begin{array}{|c|c|c|} \hline \omega_{2+}^{\#1} \alpha\beta & f_{2+}^{\#1} \alpha\beta & \omega_{2-}^{\#1} \alpha\beta\chi \\ \hline 0 & 0 & 0 \\ \hline 0 & 0 & 0 \\ \hline 0 & 0 & 0 \\ \hline \end{array} \right\}$$

{AspectRatio → Automatic}],

Join[548, {AspectRatio → Automatic}, {Null, Null}, {500}]]

Massive and massless spectra

xAct`PSALter`Private`GraphicsCollage[{Null, Null},

Join[548, {AspectRatio → Automatic}, {Null, Null}, {500}]]

Unitarity conditions

