

# Particle spectrograph

## Wave operator and propagator

```
xAct`PSALTER`Private`GraphicsCollage[Join[xAct`PSALTER`Private`SplitWignerGrid[
  KeyAbsent, xAct`PSALTER`Private`SavedWaveOperator], {AspectRatio → Automatic}], Join[522, {AspectRatio → Automatic},
  xAct`PSALTER`Private`PrintSpectrum[
    { KeyAbsent, xAct`PSALTER`Private`SavedSpectrum,
      xAct`PSALTER`Private`ShellType → xAct`PSALTER`Private`Massive]
    xAct`PSALTER`Private`PrintSpectrum[KeyAbsent,
      xAct`PSALTER`Private`SavedMasslessSpectrum,
      xAct`PSALTER`Private`ShellType → xAct`PSALTER`Private`Massless], {500}]]
```

## Massive and massless spectra

```
xAct`PSALTER`Private`GraphicsCollage[
  xAct`PSALTER`Private`PrintSpectrum[
    { KeyAbsent, xAct`PSALTER`Private`SavedSpectrum,
      xAct`PSALTER`Private`ShellType → xAct`PSALTER`Private`Massive]
    xAct`PSALTER`Private`PrintSpectrum[KeyAbsent,
      xAct`PSALTER`Private`SavedMasslessSpectrum,
      xAct`PSALTER`Private`ShellType → xAct`PSALTER`Private`Massless], Join[522,
    {AspectRatio → Automatic}, {
      xAct`PSALTER`Private`PrintSpectrum[
        { KeyAbsent, xAct`PSALTER`Private`SavedSpectrum,
          xAct`PSALTER`Private`ShellType → xAct`PSALTER`Private`Massive]
        xAct`PSALTER`Private`PrintSpectrum[KeyAbsent,
          xAct`PSALTER`Private`SavedMasslessSpectrum,
          xAct`PSALTER`Private`ShellType → xAct`PSALTER`Private`Massless], {500}]]
```

## Unitarity conditions

```
Missing[KeyAbsent, xAct`PSALTER`Private`SavedOverallUnitarity]
```