

# Particle spectrograph

## Wave operator and propagator

```
xAct`PSALTER`Private`GraphicsCollage[Join[xAct`PSALTER`Private`SplitWignerGrid[
  xAct`PSALTER`Private`SavedWaveOperator], {AspectRatio → Automatic}], Join[411, {AspectRatio → Automatic},
  xAct`PSALTER`Private`PrintSpectrum[
    { xAct`PSALTER`Private`SavedSpectrum,
      xAct`PSALTER`Private`ShellType → xAct`PSALTER`Private`Massive]
    xAct`PSALTER`Private`PrintSpectrum[
      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[
    { xAct`PSALTER`Private`SavedSpectrum,
      xAct`PSALTER`Private`ShellType → xAct`PSALTER`Private`Massive]
    xAct`PSALTER`Private`PrintSpectrum[
      xAct`PSALTER`Private`SavedMasslessSpectrum,
      xAct`PSALTER`Private`ShellType → xAct`PSALTER`Private`Massless]
    }, Join[411,
  {AspectRatio → Automatic}, {
    xAct`PSALTER`Private`PrintSpectrum[
      { xAct`PSALTER`Private`SavedSpectrum,
        xAct`PSALTER`Private`ShellType → xAct`PSALTER`Private`Massive]
      xAct`PSALTER`Private`PrintSpectrum[
        xAct`PSALTER`Private`SavedMasslessSpectrum,
        xAct`PSALTER`Private`ShellType → xAct`PSALTER`Private`Massless]
      }, {500}]]]
```

## Unitarity conditions

```
MasslessScalarTheory[xAct`PSALTER`Private`SavedOverallUnitarity]
```