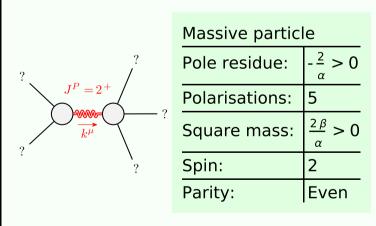
## Particle spectrograph

## Wave operator and propagator

Quadratic (free) action
$$S = \frac{1}{\int \int \int (\beta(h_{\alpha\beta} h^{\alpha\beta} - h^{\alpha}_{\alpha} h^{\beta}_{\beta}) + h^{\alpha\beta} \mathcal{T}_{\alpha\beta} + \frac{1}{2} \alpha(\partial_{\beta} h^{\lambda}_{\lambda} \partial^{\beta} h^{\alpha}_{\alpha} + 2 \partial_{\alpha} h^{\alpha\beta} \partial_{\lambda} h^{\lambda}_{\beta} - 2 \partial_{\beta} h^{\alpha}_{\alpha} \partial_{\lambda} h^{\lambda}_{\beta} - \partial_{\lambda} h^{\alpha\beta}_{\alpha} \partial_{\lambda} h^{\alpha\beta}_{\beta}) (t, x, y, z] dz dy dx dt}$$

$$h^{\#1}_{0+} h^{\#2}_{0+} + \frac{h^{\#2}_{0+} \partial_{\beta} \partial_{\beta}$$

## Massive and massless spectra



(No massless particles)

## Unitarity conditions

 $\alpha$  < 0 &&  $\beta$  < 0