Particle spectrograph

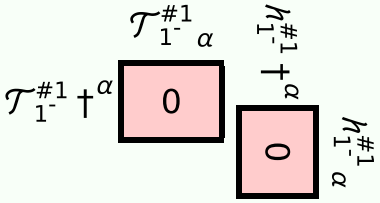
Wave operator and propagator

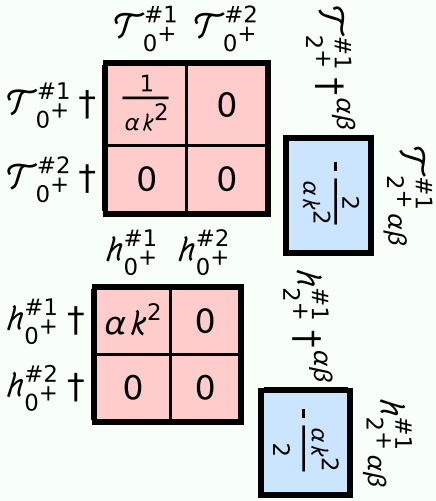
Quadratic (free) action

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

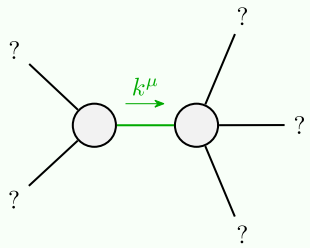
Source constraints

SO(3) irreps	Fundamental fields	Multiplicities
$\mathcal{T}^{\#2}_{0^+} == 0$	$\partial_\beta\partial_\alpha\mathcal{T}^{\alpha\beta} == 0$	1
$\mathcal{T}^{\#1\,\alpha}_{1^-} == 0$	$\partial_\chi\partial_\beta\partial^\alpha\mathcal{T}^{\beta\chi} == \partial_\chi\partial^\chi\partial_\beta\mathcal{T}^{\alpha\beta}$	3
Total constraints/gauge generators:		4





Massive and massless spectra



Quadratic pole

Pole residue:	$-\frac{1}{\alpha} > 0$
Polarisations:	2

(No massive particles)

Unitarity conditions

$\alpha < 0$