Particle spectrograph

Wave operator and propagator

Quadratic (free) Lagrangian density

$$\gamma\, \mathcal{B}_\alpha\, \mathcal{B}^\alpha + \mathcal{B}^\alpha\, \mathcal{T}_\alpha + \beta\, \partial_\alpha \mathcal{B}^\alpha\, \partial_\beta \mathcal{B}^\beta$$

$$\mathcal{T}_{1^-}^{\#1}{}_\alpha$$

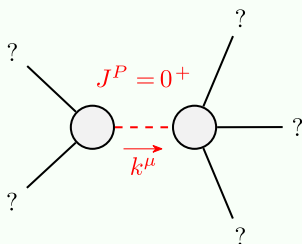$$\mathcal{T}_{1^-}^{\#1}\dagger^\alpha \quad \boxed{\dfrac{1}{\gamma}}$$

$$\mathcal{B}_{1^-}^{\#1}\dagger^\alpha \quad \boxed{\gamma} \quad \mathcal{B}_{1^-}^{\#1}{}_\alpha$$

$$\mathcal{T}_{0^+}^{\#1}\dagger \quad \boxed{\dfrac{1}{\gamma+\beta k^2}} \quad \mathcal{T}_{0^+}^{\#1}$$

$$\mathcal{B}_{0^+}^{\#1}\dagger \quad \boxed{\gamma+\beta k^2} \quad \mathcal{B}_{0^+}^{\#1}$$

(No source constraints)

Massive and massless spectra

Massive particle	
Pole residue:	$\dfrac{1}{\beta} > 0$
Polarisations:	1
Square mass:	$-\dfrac{\gamma}{\beta} > 0$
Spin:	0
Parity:	Even

$J^P = 0^+$

k^μ

(No massless particles)

Unitarity conditions

$\beta > 0 \ \&\& \ \gamma < 0$