Particle spectrograph

Wave operator and propagator

Quadratic (free) Lagrangian density
$$\gamma\,\mathcal{B}_\alpha\,\mathcal{B}^\alpha + \mathcal{B}^\alpha\,\mathcal{J}_\alpha + \beta\,\partial_\alpha\mathcal{B}^\alpha\partial_\beta\mathcal{B}^\beta + \alpha\,\partial_\beta\mathcal{B}_\alpha\partial^\beta\mathcal{B}^\alpha$$

(No source constraints)

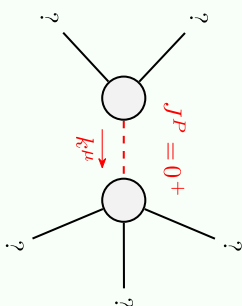$$\mathcal{B}_{0^+}^{\#1}\dagger\ \boxed{\gamma + (\alpha+\beta)\,k^2}\ \ \mathcal{B}_{0^+}^{\#1}$$

$$\mathcal{J}_{0^+}^{\#1}\dagger\ \boxed{\dfrac{1}{\gamma + (\alpha+\beta)\,k^2}}\qquad \mathcal{J}_{0^+}^{\#1}$$

$$\mathcal{B}_{1^-}^{\#1}\dagger^{\alpha}\ \boxed{\gamma + \alpha\,k^2}\qquad \mathcal{B}_{1^-\ \alpha}^{\#1}$$

$$\mathcal{J}_{1^-}^{\#1}\dagger^{\alpha}\ \boxed{\dfrac{1}{\gamma + \alpha\,k^2}}\qquad \mathcal{J}_{1^-\ \alpha}^{\#1}$$

Massive and massless spectra

(No massless particles)

Massive particle				
Pole residue:	Polarisations:	Square mass:	Spin:	Parity:
$\dfrac{1}{\alpha+\beta} > 0$	1	$-\dfrac{\gamma}{\alpha+\beta} > 0$	0	Even
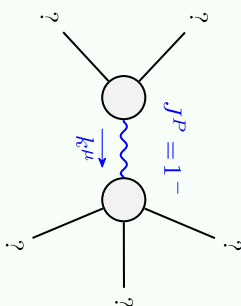
Massive particle				
Pole residue:	Polarisations:	Square mass:	Spin:	Parity:
$-\dfrac{1}{\alpha} > 0$	3	$-\dfrac{\gamma}{\alpha} > 0$	1	Odd

Unitarity conditions

(Unitarity is demonstrably impossible)