

Particle spectrograph

Wave operator and propagator

Spin-parity	form	Covariant	form	Multiplicities
^{#1} ₀ ⁺ σ = 0		εη _{αβχδ}	∂ ^δ σ ^{αβχ} == 0	1
^{#2} ₀ ⁺ τ = 0			∂ _β ∂ ^α τ ^{αβ} == 0	1
^{#1} ₀ ⁺ τ-2 i k0 ⁺ σ == 0			∂ _β ∂ ^α τ ^{αβ} == ∂ _β ∂ ^β τ ^α _α + 2 ∂ _χ ∂ ^α ∂ _β σ ^{αβ} _α	1
^{#2} ₁ ⁺ τ + 2 i k1 ⁺ σ == 0			∂ _χ ∂ _β ∂ ^α τ ^{βχ} == ∂ _χ ∂ ^α ∂ _β τ ^{αβ} + 2 ∂ _β ∂ ^δ ∂ _χ ∂ _β σ ^{αβχ}	3
^{#1} ₁ ⁺ τ ^α == 0			∂ _χ ∂ _β ∂ ^α τ ^{βχ} == ∂ _χ ∂ ^α ∂ _β τ ^{β^α}	3
^{#1} ₁ ⁺ τ ^{αβ} == 0			∂ _χ ∂ ^α τ ^{βχ} + ∂ _χ ∂ ^β τ ^{αχ} + ∂ _χ ∂ ^α τ ^{αβ} == ∂ _χ ∂ ^α τ ^{αβ} + ∂ _χ ∂ ^β τ ^{αχ} + ∂ _χ ∂ ^α τ ^{βα}	3
^{#2} ₁ ⁺ σ ^{αβ} == 0			∂ _β ∂ _χ ∂ ^α σ ^{βχδ} + ∂ _β ∂ ^δ ∂ _χ σ ^{αβχ} == ∂ _χ ∂ ^β σ ^{αχδ}	3
^{#1} ₂ ⁺ τ ^{αβ} == 0	4		∂ _β ∂ _χ ∂ ^β ∂ ^α τ ^{αχδ} + 2 ∂ _β ∂ ^δ ∂ ^β ∂ ^α τ ^{αχ} _χ + 3 ∂ _α ∂ ^δ ∂ _χ ∂ ^α τ ^{αβ} + 3 ∂ _β ∂ ^δ ∂ _χ ∂ ^α τ ^{βα} + 2 η ^{αβ} ∂ _ε ∂ ^δ ∂ _β ∂ _χ τ ^{αχδ} == 3 ∂ _α ∂ ^δ ∂ _χ ∂ ^α τ ^{βχ} + 3 ∂ _β ∂ ^δ ∂ _χ ∂ ^α τ ^{αχβ} + 3 ∂ _α ∂ ^δ ∂ _χ ∂ ^β τ ^{αχ} + 3 ∂ _α ∂ ^δ ∂ _χ ∂ ^β τ ^{αχ} + 2 η ^{αβ} ∂ _ε ∂ ^δ ∂ _χ ∂ ^α τ ^{βχ}	5
^{#1} ₂ ⁺ σ ^{αβ} == 0	3		∂ _β ∂ _χ ∂ ^α σ ^{βχδ} + 3 ∂ _β ∂ _χ ∂ ^β σ ^{αχδ} + 2 η ^{αβ} ∂ _ε ∂ ^δ ∂ _β σ ^{αχδ} == 2 ∂ _β ∂ ^δ ∂ _χ ∂ ^α σ ^{βχδ} + 3 (∂ _ε ∂ ^δ ∂ _χ σ ^{αχβ} + ∂ _β ∂ ^δ ∂ _χ σ ^{βχ^α})	5
Total expected gauge generators:				25

	$\overset{\#1}{2^+} \mathcal{A} \alpha \beta$	$\overset{\#1}{2^+} f \alpha \beta$	$\overset{\#1}{2^+} \mathcal{A} \alpha \beta \chi$	$\overset{\#1}{2^+} \sigma \alpha \beta$	$\overset{\#1}{2^+} \tau \alpha \beta$	$\overset{\#1}{2^+} \sigma \alpha \beta \chi$
$\overset{\#1}{2^+} \mathcal{A} \alpha \beta$	0	0	0	0	0	0
$\overset{\#1}{2^+} f \alpha \beta$	0	0	0	0	0	0
$\overset{\#1}{2^+} \mathcal{A} \alpha \beta \chi$	0	0	$k^2 r_1$	$\overset{\#1}{2^+} \sigma \alpha \beta \chi$	0	$\frac{1}{k^2 r_1}$

	$\overset{\#2}{1^+} \mathcal{A} \alpha$	$\overset{\#2}{1^+} \mathcal{A} \alpha$	$\overset{\#1}{1^+} \mathcal{A} \alpha$	$\overset{\#2}{1^+} f \alpha$	$\overset{\#2}{1^+} f \alpha$	$\overset{\#1}{1^+} f \alpha$
$\overset{\#2}{1^+} \mathcal{A} \alpha$	0	0	0	0	0	0
$\overset{\#2}{1^+} f \alpha$	0	0	0	0	0	0
$\overset{\#1}{1^+} \mathcal{A} \alpha$	0	0	0	0	0	0
$\overset{\#2}{1^+} f \alpha$	0	0	0	0	0	0
$\overset{\#1}{1^+} f \alpha$	0	0	0	0	0	0

	$\overset{\#1}{1^+} \mathcal{A} \alpha \beta$	$\overset{\#2}{1^+} \mathcal{A} \alpha \beta$	$\overset{\#1}{1^+} \mathcal{A} \alpha \beta$	$\overset{\#2}{1^+} f \alpha \beta$	$\overset{\#1}{1^+} f \alpha \beta$	$\overset{\#2}{1^+} f \alpha \beta$
$\overset{\#1}{1^+} \mathcal{A} \alpha \beta$	$k^2 (2 r_1 + r_5)$	0	0	0	0	0
$\overset{\#2}{1^+} \mathcal{A} \alpha \beta$	0	0	0	0	0	0
$\overset{\#1}{1^+} f \alpha \beta$	0	0	0	0	0	0
$\overset{\#1}{1^+} \mathcal{A} \alpha$	0	0	0	0	0	0
$\overset{\#2}{1^+} \mathcal{A} \alpha$	0	0	0	0	0	0
$\overset{\#1}{1^+} f \alpha$	0	0	0	0	0	0
$\overset{\#2}{1^+} f \alpha$	0	0	0	0	0	0

	$\overset{\#1}{1^+} \mathcal{A} \alpha \beta$	$\overset{\#2}{1^+} \mathcal{A} \alpha \beta$	$\overset{\#1}{1^+} \mathcal{A} \alpha \beta$	$\overset{\#2}{1^+} f \alpha \beta$	$\overset{\#1}{1^+} f \alpha \beta$	$\overset{\#2}{1^+} f \alpha \beta$
$\overset{\#1}{1^+} \mathcal{A} \alpha \beta$	$k^2 (2 r_1 + r_5)$	0	0	0	0	0
$\overset{\#2}{1^+} \mathcal{A} \alpha \beta$	0	0	0	0	0	0
$\overset{\#1}{1^+} f \alpha \beta$	0	0	0	0	0	0
$\overset{\#1}{1^+} \mathcal{A} \alpha$	0	0	0	0	0	0
$\overset{\#2}{1^+} \mathcal{A} \alpha$	0	0	0	0	0	0
$\overset{\#1}{1^+} f \alpha$	0	0	0	0	0	0
$\overset{\#2}{1^+} f \alpha$	0	0	0	0	0	0