PSALTer results panel

Wave operator and propagator

	$\overset{1^+}{\cdot}\sigma^{\parallel}{}_{\alpha\beta}$	$\overset{1^+}{\cdot}\sigma^{\perp}{}_{\alpha\beta}$	$\overset{1^+}{\cdot}\tau^{\parallel}{}_{\alpha\beta}$	$\overset{1^-}{\cdot}\sigma^{\parallel}{}_{\alpha}$	$\overset{1^-}{\cdot}\sigma^{\perp}{}_{\alpha}$	$\overset{1^-}{\cdot}\tau^{\parallel}{}_{\alpha}$	$\overset{1^-}{\cdot}\tau^{\perp}{}_{\alpha}$
$\overset{1^+}{\cdot}\sigma^{\parallel}\dagger^{\alpha\beta}$	$\frac{8(2\beta_1-\beta_2)}{16(\beta_1-\beta_2)(2\beta_1+\beta_2)+4(\alpha_2-\alpha_3+4\alpha_4-4\alpha_6)(2\beta_1-\beta_2)k^2-4\beta_1(\mathcal{M}_{Pl}^2)+10\beta_2(\mathcal{M}_{Pl}^2)-(\mathcal{M}_{Pl}^2)^2}$	$-\frac{2\sqrt{2}(4\beta_1-6\beta_2+(\mathcal{M}_{Pl}^2))}{(1+k^2)(16(\beta_1-\beta_2)(2\beta_1+\beta_2)+4(\alpha_2-\alpha_3+4\alpha_4-4\alpha_6)(2\beta_1-\beta_2)k^2-4\beta_1(\mathcal{M}_{Pl}^2)+10\beta_2(\mathcal{M}_{Pl}^2)-(\mathcal{M}_{Pl}^2)^2)}$	$-\frac{2i\sqrt{2}k(4\beta_1-6\beta_2+(\mathcal{M}_{Pl}^2))}{(1+k^2)(16(\beta_1-\beta_2)(2\beta_1+\beta_2)+4(\alpha_2-\alpha_3+4\alpha_4-4\alpha_6)(2\beta_1-\beta_2)k^2-4\beta_1(\mathcal{M}_{Pl}^2)+10\beta_2(\mathcal{M}_{Pl}^2)-(\mathcal{M}_{Pl}^2)^2)}$	0	0	0	0
$\overset{1^+}{\cdot}\sigma^{\perp}\dagger^{\alpha\beta}$	$\frac{2\sqrt{2}(4\beta_1-6\beta_2+(\mathcal{M}_{Pl}^2))}{(1+k^2)(-16(\beta_1-\beta_2)(2\beta_1+\beta_2)-4(\alpha_2-\alpha_3+4\alpha_4-4\alpha_6)(2\beta_1-\beta_2)k^2+4\beta_1(\mathcal{M}_{Pl}^2)-10\beta_2(\mathcal{M}_{Pl}^2)+(\mathcal{M}_{Pl}^2)^2)}$	$\frac{2(12\beta_1-10\beta_2+2(\alpha_2-\alpha_3+4\alpha_4-4\alpha_6)k^2+(\mathcal{M}_{Pl}^2))}{(1+k^2)^2(16(\beta_1-\beta_2)(2\beta_1+\beta_2)+4(\alpha_2-\alpha_3+4\alpha_4-4\alpha_6)(2\beta_1-\beta_2)k^2-4\beta_1(\mathcal{M}_{Pl}^2)+10\beta_2(\mathcal{M}_{Pl}^2)-(\mathcal{M}_{Pl}^2)^2)}$	$\frac{2ik(12\beta_1-10\beta_2+2(\alpha_2-\alpha_3+4\alpha_4-4\alpha_6)k^2+(\mathcal{M}_{Pl}^2))}{(1+k^2)^2(16(\beta_1-\beta_2)(2\beta_1+\beta_2)+4(\alpha_2-\alpha_3+4\alpha_4-4\alpha_6)(2\beta_1-\beta_2)k^2-4\beta_1(\mathcal{M}_{Pl}^2)+10\beta_2(\mathcal{M}_{Pl}^2)-(\mathcal{M}_{Pl}^2)^2)}$	0	0	0	0
$\overset{1^+}{\cdot}\tau^{\parallel}\dagger^{\alpha\beta}$	$-\frac{2i\sqrt{2}k(4\beta_1-6\beta_2+(\mathcal{M}_{Pl}^2))}{(1+k^2)(-16(\beta_1-\beta_2)(2\beta_1+\beta_2)-4(\alpha_2-\alpha_3+4\alpha_4-4\alpha_6)(2\beta_1-\beta_2)k^2+4\beta_1(\mathcal{M}_{Pl}^2)-10\beta_2(\mathcal{M}_{Pl}^2)+(\mathcal{M}_{Pl}^2)^2)}$	$\frac{2ik(12\beta_1-10\beta_2+2(\alpha_2-\alpha_3+4\alpha_4-4\alpha_6)k^2+(\mathcal{M}_{Pl}^2))}{(1+k^2)^2(-16(\beta_1-\beta_2)(2\beta_1+\beta_2)-4(\alpha_2-\alpha_3+4\alpha_4-4\alpha_6)(2\beta_1-\beta_2)k^2+4\beta_1(\mathcal{M}_{Pl}^2)-10\beta_2(\mathcal{M}_{Pl}^2)+(\mathcal{M}_{Pl}^2)^2)}$	$\frac{2k^2(12\beta_1-10\beta_2+2(\alpha_2-\alpha_3+4\alpha_4-4\alpha_6)k^2+(\mathcal{M}_{Pl}^2))}{(1+k^2)^2(16(\beta_1-\beta_2)(2\beta_1+\beta_2)+4(\alpha_2-\alpha_3+4\alpha_4-4\alpha_6)(2\beta_1-\beta_2)k^2-4\beta_1(\mathcal{M}_{Pl}^2)+10\beta_2(\mathcal{M}_{Pl}^2)-(\mathcal{M}_{Pl}^2)^2)}$	0	0	0	0
$\overset{1^-}{\cdot}\sigma^{\parallel}\dagger^{\alpha}$	0	0	0	$\frac{4(2\beta_1+\beta_2+\beta_3)}{2(2\beta_1+\beta_2)(2\beta_1+\beta_2+3\beta_3)+2(2\alpha_2+4\alpha_4+\alpha_5)(2\beta_1+\beta_2+\beta_3)k^2+(2\beta_1+\beta_2-3\beta_3)(\mathcal{M}_{Pl}^2)-(\mathcal{M}_{Pl}^2)^2}$	$\frac{2\sqrt{2}(2\beta_3+(\mathcal{M}_{Pl}^2))}{(1+2k^2)(2(2\beta_1+\beta_2)(2\beta_1+\beta_2+3\beta_3)+2(2\alpha_2+4\alpha_4+\alpha_5)(2\beta_1+\beta_2+\beta_3)k^2+(2\beta_1+\beta_2-3\beta_3)(\mathcal{M}_{Pl}^2)-(\mathcal{M}_{Pl}^2)^2)}$	0	$\frac{4ik(2\beta_3+(\mathcal{M}_{Pl}^2))}{(1+2k^2)(2(2\beta_1+\beta_2)(2\beta_1+\beta_2+3\beta_3)+2(2\alpha_2+4\alpha_4+\alpha_5)(2\beta_1+\beta_2+\beta_3)k^2+(2\beta_1+\beta_2-3\beta_3)(\mathcal{M}_{Pl}^2)-(\mathcal{M}_{Pl}^2)^2)}$
$\overset{1^-}{\cdot}\sigma^{\perp}\dagger^{\alpha}$	0	0	0	$\frac{2\sqrt{2}(2\beta_3+(\mathcal{M}_{Pl}^2))}{(1+2k^2)(2(2\beta_1+\beta_2)(2\beta_1+\beta_2+3\beta_3)+2(2\alpha_2+4\alpha_4+\alpha_5)(2\beta_1+\beta_2+\beta_3)k^2+(2\beta_1+\beta_2-3\beta_3)(\mathcal{M}_{Pl}^2)-(\mathcal{M}_{Pl}^2)^2)}$	$\frac{2(4\beta_1+2\beta_2+4\beta_3+2(2\alpha_2+4\alpha_4+\alpha_5)k^2+(\mathcal{M}_{Pl}^2))}{(1+2k^2)^2(2(2\beta_1+\beta_2)(2\beta_1+\beta_2+3\beta_3)+2(2\alpha_2+4\alpha_4+\alpha_5)(2\beta_1+\beta_2+\beta_3)k^2+(2\beta_1+\beta_2-3\beta_3)(\mathcal{M}_{Pl}^2)-(\mathcal{M}_{Pl}^2)^2)}$	0	$\frac{2i\sqrt{2}k(4\beta_1+2\beta_2+4\beta_3+2(2\alpha_2+4\alpha_4+\alpha_5)k^2+(\mathcal{M}_{Pl}^2))}{(1+2k^2)^2(2(2\beta_1+\beta_2)(2\beta_1+\beta_2+3\beta_3)+2(2\alpha_2+4\alpha_4+\alpha_5)(2\beta_1+\beta_2+\beta_3)k^2+(2\beta_1+\beta_2-3\beta_3)(\mathcal{M}_{Pl}^2)-(\mathcal{M}_{Pl}^2)^2)}$
$\overset{1^-}{\cdot}\tau^{\parallel}\dagger^{\alpha}$	0	0	0	0	0	0	0
$\overset{1^-}{\cdot}\tau^{\perp}\dagger^{\alpha}$	0	0	0	$\frac{4ik(2\beta_3+(\mathcal{M}_{Pl}^2))}{(1+2k^2)(-2(2\beta_1+\beta_2)(2\beta_1+\beta_2+3\beta_3)-2(2\alpha_2+4\alpha_4+\alpha_5)(2\beta_1+\beta_2+\beta_3)k^2-(2\beta_1+\beta_2-3\beta_3)(\mathcal{M}_{Pl}^2)+(\mathcal{M}_{Pl}^2)^2)}$	$\frac{2i\sqrt{2}k(4\beta_1+2\beta_2+4\beta_3+2(2\alpha_2+4\alpha_4+\alpha_5)k^2+(\mathcal{M}_{Pl}^2))}{(1+2k^2)^2(-2(2\beta_1+\beta_2)(2\beta_1+\beta_2+3\beta_3)-2(2\alpha_2+4\alpha_4+\alpha_5)(2\beta_1+\beta_2+\beta_3)k^2-(2\beta_1+\beta_2-3\beta_3)(\mathcal{M}_{Pl}^2)+(\mathcal{M}_{Pl}^2)^2)}$	0	$\frac{4k^2(4\beta_1+2\beta_2+4\beta_3+2(2\alpha_2+4\alpha_4+\alpha_5)k^2+(\mathcal{M}_{Pl}^2))}{(1+2k^2)^2(2(2\beta_1+\beta_2)(2\beta_1+\beta_2+3\beta_3)+2(2\alpha_2+4\alpha_4+\alpha_5)(2\beta_1+\beta_2+\beta_3)k^2+(2\beta_1+\beta_2-3\beta_3)(\mathcal{M}_{Pl}^2)-(\mathcal{M}_{Pl}^2)^2)}$

	$\overset{1^+}{\cdot}\mathcal{A}^{\parallel}{}_{\alpha\beta}$	$\overset{1^+}{\cdot}\mathcal{A}^{\perp}{}_{\alpha\beta}$	$\overset{1^+}{\cdot}f^{\parallel}{}_{\alpha\beta}$	$\overset{1^-}{\cdot}\mathcal{A}^{\parallel}{}_{\alpha}$	$\overset{1^-}{\cdot}\mathcal{A}^{\perp}{}_{\alpha}$	$\overset{1^-}{\cdot}f^{\parallel}{}_{\alpha}$	$\overset{1^-}{\cdot}f^{\perp}{}_{\alpha}$
$\overset{1^+}{\cdot}\mathcal{A}^{\parallel}\dagger^{\alpha\beta}$	$\frac{1}{4}(12\beta_1-10\beta_2+2(\alpha_2-\alpha_3+4\alpha_4-4\alpha_6)k^2+(\mathcal{M}_{Pl}^2))$	$\frac{4\beta_1-6\beta_2+(\mathcal{M}_{Pl}^2)}{2\sqrt{2}}$	$\frac{ik(4\beta_1-6\beta_2+(\mathcal{M}_{Pl}^2))}{2\sqrt{2}}$	0	0 0		0
$\overset{1^+}{\cdot}\mathcal{A}^{\perp}\dagger^{\alpha\beta}$	$\frac{4\beta_1-6\beta_2+(\mathcal{M}_{Pl}^2)}{2\sqrt{2}}$	$2\beta_1-\beta_2$	$i(2\beta_1-\beta_2)k$	0	0 0		0
$\overset{1^+}{\cdot}f^{\parallel}\dagger^{\alpha\beta}$	$-\frac{ik(4\beta_1-6\beta_2+(\mathcal{M}_{Pl}^2))}{2\sqrt{2}}$	$-i(2\beta_1-\beta_2)k$	$(2\beta_1-\beta_2)k^2$	0	0 0		0
$\overset{1^-}{\cdot}\mathcal{A}^{\parallel}\dagger^{\alpha}$	0	0	0	$\beta_1+\frac{1}{4}(2\beta_2+4\beta_3+2(2\alpha_2+4\alpha_4+\alpha_5)k^2+(\mathcal{M}_{Pl}^2))$	$-\frac{2\beta_3+(\mathcal{M}_{Pl}^2)}{2\sqrt{2}}$	0	$-\frac{1}{2}ik(2\beta_3+(\mathcal{M}_{Pl}^2))$
$\overset{1^-}{\cdot}\mathcal{A}^{\perp}\dagger^{\alpha}$	0	0	0	$-\frac{2\beta_3+(\mathcal{M}_{Pl}^2)}{2\sqrt{2}}$	$\frac{1}{2}(2\beta_1+\beta_2+\beta_3)$	0	$\frac{i(2\beta_1+\beta_2+\beta_3)k}{\sqrt{2}}$
$\overset{1^-}{\cdot}f^{\parallel}\dagger^{\alpha}$	0	0	0	0	0 0		0
$\overset{1^-}{\cdot}f^{\perp}\dagger^{\alpha}$	0	0	0	$\frac{1}{2}ik(2\beta_3+(\mathcal{M}_{Pl}^2))$	$-\frac{i(2\beta_1+\beta_2+\beta_3)k}{\sqrt{2}}$	0	$(2\beta_1+\beta_2+\beta_3)k^2$

	$\overset{0^+}{\cdot}\mathcal{A}^{\parallel}$	$\overset{0^+}{\cdot}f^{\parallel}$	$\overset{0^+}{\cdot}f^{\perp}$	$\overset{0^-}{\cdot}\mathcal{A}^{\parallel}$
$\overset{0^+}{\cdot}\mathcal{A}^{\parallel}\dagger$	$\frac{1}{2}(2\beta_1+\beta_2+3\beta_3+2(6\alpha_1+2\alpha_2+2\alpha_3+2\alpha_4+\alpha_5+2\alpha_6)k^2+(\mathcal{M}_{Pl}^2))$	$-\frac{ik(2\beta_1+\beta_2+3\beta_3+(\mathcal{M}_{Pl}^2))}{\sqrt{2}}$	0	0
$\overset{0^+}{\cdot}f^{\parallel}\dagger$	$\frac{ik(2\beta_1+\beta_2+3\beta_3+(\mathcal{M}_{Pl}^2))}{\sqrt{2}}$	$(2\beta_1+\beta_2+3\beta_3)k^2$	0	0
$\overset{0^+}{\cdot}f^{\perp}\dagger$	0	0 0		0
$\overset{0^-}{\cdot}\mathcal{A}^{\parallel}\dagger$	0	0	0	$\frac{1}{2}(8\beta_1-8\beta_2+4\alpha_4k^2-2\alpha_5k^2+(\mathcal{M}_{Pl}^2))$

$$\mathcal{S} == \iiiint(\mathcal{A}^{\alpha\beta\chi}\ \sigma_{\alpha\beta\chi}+f^{\alpha\beta}\ \tau(\Delta+\mathcal{K})_{\alpha\beta}-$$
$$\tfrac{1}{2}(\mathcal{M}_{Pl}^2)(\mathcal{A}_{\iota\kappa\theta}\ \mathcal{A}^{\iota\theta\kappa}+\mathcal{A}^{\iota\theta}{}_{\iota}\ \mathcal{A}_{\theta}{}^{\kappa}{}_{\kappa}+2\ f^{\iota\theta}\ \partial_\theta\mathcal{A}_{\iota}{}^{\kappa}{}_{\kappa}-$$
$$2\partial_\theta\mathcal{A}^{\iota\theta}{}_{\iota}-2\ f^{\iota\theta}\ \partial_\kappa\mathcal{A}_{\iota}{}^{\kappa}{}_{\theta}+2\ f^{\iota}{}_{\iota}\ \partial_\kappa\mathcal{A}^{\theta\kappa}{}_{\theta})+$$
$$\beta_3(-\mathcal{A}^{\iota\theta}{}_{\iota}\ \mathcal{A}_{\theta}{}^{\kappa}{}_{\kappa}+2\ \mathcal{A}_{\iota}{}^{\kappa}{}_{\kappa}\ \partial_\theta f^{\iota\theta}-2\ \mathcal{A}_{\theta}{}^{\kappa}{}_{\kappa}\ \partial^\theta f^{\iota}{}_{\iota}+$$
$$\partial_\theta f^{\kappa}{}_{\kappa}\ \partial^\theta f^{\iota}{}_{\iota}+\partial_\theta f^{\iota\theta}\ \partial_\kappa f_{\iota}{}^{\kappa}-2\ \partial^\theta f^{\iota}{}_{\iota}\ \partial_\kappa f_{\theta}{}^{\kappa})+$$
$$\alpha_5(-2\partial_\iota\mathcal{A}_{\alpha\theta\kappa}+\partial_\iota\mathcal{A}_{\alpha\kappa\theta}+\partial_\kappa\mathcal{A}_{\alpha\theta\iota})\partial^\kappa\mathcal{A}^{\alpha\iota\theta}+$$
$$2\beta_1(-\mathcal{A}_{\iota\kappa\theta}\ \mathcal{A}^{\iota\theta\kappa}+(2\ \mathcal{A}_{\theta\kappa\iota}-\partial_\iota f_{\kappa\theta}+\partial_\kappa f_{\iota\theta})\partial^\kappa f^{\iota\theta}+$$
$$\mathcal{A}_{\iota\theta\kappa}\ (\mathcal{A}^{\iota\theta\kappa}+2\ \partial^\kappa f^{\iota\theta}))+$$
$$\beta_2((-2\ \mathcal{A}_{\theta\kappa\iota}-2\ \partial_\iota f_{\theta\kappa}+\partial_\theta f_{\iota\kappa}+\partial_\kappa f_{\theta\iota})\partial^\kappa f^{\iota\theta}-$$
$$\mathcal{A}_{\iota\theta\kappa}\ (\mathcal{A}^{\iota\theta\kappa}+2\ \partial^\kappa f^{\iota\theta})+\ \mathcal{A}_{\iota\kappa\theta}\ (3\ \mathcal{A}^{\iota\theta\kappa}+4\ \partial^\kappa f^{\iota\theta}))-$$
$$\alpha_2(\partial_\kappa\mathcal{A}_{\theta}{}^{\lambda}{}_{\lambda}\ \partial^\kappa\mathcal{A}^{\iota\theta}{}_{\iota}+(\partial_\iota\mathcal{A}^{\iota\theta\kappa}-2\ \partial^\kappa\mathcal{A}^{\iota\theta}{}_{\iota})\partial_\lambda\mathcal{A}_{\theta}{}^{\lambda}{}_{\kappa})+$$
$$4\alpha_1\partial_\theta\mathcal{A}^{\iota\theta}{}_{\iota}\ \partial_\lambda\mathcal{A}^{\kappa\lambda}{}_{\kappa}-$$
$$\alpha_3(\partial_\kappa\mathcal{A}_{\lambda}{}^{\zeta}{}_{\zeta}\ \partial^\lambda\mathcal{A}^{\theta\kappa}{}_{\theta}+(\partial_\theta\mathcal{A}^{\theta\kappa\lambda}-2\ \partial^\lambda\mathcal{A}^{\theta\kappa}{}_{\theta})\partial_\zeta\mathcal{A}_{\lambda}{}^{\zeta}{}_{\kappa})+$$
$$4\alpha_6\partial_\iota\mathcal{A}_{\lambda\zeta\alpha}\partial^\zeta\mathcal{A}^{\alpha\iota\lambda}+2\ \alpha_4(-\partial_\kappa\mathcal{A}_{\alpha\theta\zeta}+\partial_\zeta\mathcal{A}_{\alpha\theta\kappa})\partial^\zeta\mathcal{A}^{\alpha\theta\kappa})[$$
$$t,x,y,z]\,dz\,dy\,dx\,dt$$

	$\overset{0^+}{\cdot}\sigma^{\parallel}$	$\overset{0^+}{\cdot}\tau^{\parallel}$	$\overset{0^+}{\cdot}\tau^{\perp}$	$\overset{0^-}{\cdot}\sigma^{\parallel}$
$\overset{0^+}{\cdot}\sigma^{\parallel}\dagger$	$\frac{1}{(6\alpha_1+2\alpha_2+2\alpha_3+2\alpha_4+\alpha_5+2\alpha_6)k^2+\frac{1}{2}(\mathcal{M}_{Pl}^2)(1-\frac{(\mathcal{M}_{Pl}^2)}{2\beta_1+\beta_2+3\beta_3})}$	$-\frac{i\sqrt{2}(2\beta_1+\beta_2+3\beta_3+(\mathcal{M}_{Pl}^2))}{k(-2(6\alpha_1+2\alpha_2+2\alpha_3+2\alpha_4+\alpha_5+2\alpha_6)(2\beta_1+\beta_2+3\beta_3)k^2+(2\beta_1+\beta_2+3\beta_3)(\mathcal{M}_{Pl}^2)+(\mathcal{M}_{Pl}^2)^2)}$	0	0
$\overset{0^+}{\cdot}\tau^{\parallel}\dagger$	$\frac{i\sqrt{2}(2\beta_1+\beta_2+3\beta_3+(\mathcal{M}_{Pl}^2))}{k((\mathcal{M}_{Pl}^2)^2+(2\beta_1+\beta_2+3\beta_3)(-2(6\alpha_1+2\alpha_2+2\alpha_3+2\alpha_4+\alpha_5+2\alpha_6)k^2+(\mathcal{M}_{Pl}^2)))}$	$-\frac{2\beta_1+\beta_2+3\beta_3+2(6\alpha_1+2\alpha_2+2\alpha_3+2\alpha_4+\alpha_5+2\alpha_6)k^2+(\mathcal{M}_{Pl}^2)}{k^2(-2(6\alpha_1+2\alpha_2+2\alpha_3+2\alpha_4+\alpha_5+2\alpha_6)(2\beta_1+\beta_2+3\beta_3)k^2+(2\beta_1+\beta_2+3\beta_3)(\mathcal{M}_{Pl}^2)+(\mathcal{M}_{Pl}^2)^2)}$	0	0
$\overset{0^+}{\cdot}\tau^{\perp}\dagger$	0	0	0	0
$\overset{0^-}{\cdot}\sigma^{\parallel}\dagger$	0	0	0	$\frac{2}{8\beta_1-8\beta_2+4\alpha_4k^2-2\alpha_5k^2+(\mathcal{M}_{Pl}^2)}$

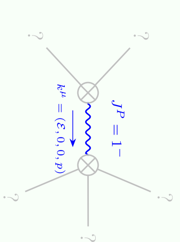
Spin-parity form	Covariant form	Multiplicities
$\overset{0^+}{\cdot}\tau^{\perp}==0$	$\partial_\beta\partial_\alpha\tau(\Delta+\mathcal{K})^{\alpha\beta}==0$	1
$2ik\overset{1^-}{\cdot}\sigma^{\perp\alpha}+\overset{1^-}{\cdot}\tau^{\perp\alpha}==0$	$\partial_\chi\partial_\beta\partial^\alpha\tau(\Delta+\mathcal{K})^{\beta\chi}==\partial_\chi\partial^\chi\partial_\beta\tau(\Delta+\mathcal{K})^{\alpha\beta}+2\ \partial_\delta\partial^\delta\partial_\chi\partial_\beta\sigma^{\beta\alpha\chi}$	3
$\overset{1^-}{\cdot}\tau^{\parallel\alpha}==0$	$\partial_\chi\partial_\beta\partial^\alpha\tau(\Delta+\mathcal{K})^{\beta\chi}==\partial_\chi\partial^\chi\partial_\beta\tau(\Delta+\mathcal{K})^{\beta\alpha}$	3
$ik\overset{1^+}{\cdot}\sigma^{\perp\alpha\beta}+\overset{1^+}{\cdot}\tau^{\parallel\alpha\beta}==0$	$\partial_\chi\partial^\alpha\tau(\Delta+\mathcal{K})^{\beta\chi}+\partial_\chi\partial^\beta\tau(\Delta+\mathcal{K})^{\chi\alpha}+\partial_\chi\partial^\chi\tau(\Delta+\mathcal{K})^{\alpha\beta}+2\ \partial_\delta\partial_\chi\partial^\alpha\sigma^{\chi\beta\delta}+2\ \partial_\delta\partial^\delta\partial_\chi\sigma^{\chi\alpha\beta}==\partial_\chi\partial^\alpha\tau(\Delta+\mathcal{K})^{\chi\beta}+\partial_\chi\partial^\beta\tau(\Delta+\mathcal{K})^{\alpha\chi}+\partial_\chi\partial^\chi\tau(\Delta+\mathcal{K})^{\beta\alpha}+2\ \partial_\delta\partial_\chi\partial^\beta\sigma^{\chi\alpha\delta}$	3
Total expected gauge generators:		10

	$\overset{2^+}{\cdot}\mathcal{A}^{\parallel}{}_{\alpha\beta}$	$\overset{2^+}{\cdot}f^{\parallel}{}_{\alpha\beta}$	$\overset{2^-}{\cdot}\mathcal{A}^{\parallel}{}_{\alpha\beta\chi}$
$\overset{2^+}{\cdot}\mathcal{A}^{\parallel}\dagger^{\alpha\beta}$	$\beta_1+\frac{1}{2}(\beta_2+(\alpha_2+\alpha_3+4\alpha_4+2\alpha_5+4\alpha_6)k^2)-\frac{(\mathcal{M}_{Pl}^2)}{4}$	$-\frac{ik(4\beta_1+2\beta_2-(\mathcal{M}_{Pl}^2))}{2\sqrt{2}}$	0
$\overset{2^+}{\cdot}f^{\parallel}\dagger^{\alpha\beta}$	$\frac{ik(4\beta_1+2\beta_2-(\mathcal{M}_{Pl}^2))}{2\sqrt{2}}$	$(2\beta_1+\beta_2)k^2$	0
$\overset{2^-}{\cdot}\mathcal{A}^{\parallel}\dagger^{\alpha\beta\chi}$	0	0	$\frac{1}{4}(4\beta_1+2\beta_2+2(4\alpha_4+\alpha_5)k^2-(\mathcal{M}_{Pl}^2))$

	$\overset{2^+}{\cdot}\sigma^{\parallel}{}_{\alpha\beta}$	$\overset{2^+}{\cdot}\tau^{\parallel}{}_{\alpha\beta}$	$\overset{2^-}{\cdot}\sigma^{\parallel}{}_{\alpha\beta\chi}$
$\overset{2^+}{\cdot}\sigma^{\parallel}\dagger^{\alpha\beta}$	$\frac{8}{4(\alpha_2+\alpha_3+4\alpha_4+2\alpha_5+4\alpha_6)k^2+(\mathcal{M}_{Pl}^2)(2-\frac{(\mathcal{M}_{Pl}^2)}{2\beta_1+\beta_2})}$	$\frac{2i\sqrt{2}(4\beta_1+2\beta_2-(\mathcal{M}_{Pl}^2))}{4(\alpha_2+\alpha_3+4\alpha_4+2\alpha_5+4\alpha_6)(2\beta_1+\beta_2)k^3+2(2\beta_1+\beta_2)k(\mathcal{M}_{Pl}^2)-k(\mathcal{M}_{Pl}^2)^2}$	0
$\overset{2^+}{\cdot}\tau^{\parallel}\dagger^{\alpha\beta}$	$-\frac{2i\sqrt{2}(4\beta_1+2\beta_2-(\mathcal{M}_{Pl}^2))}{4(\alpha_2+\alpha_3+4\alpha_4+2\alpha_5+4\alpha_6)(2\beta_1+\beta_2)k^3+2(2\beta_1+\beta_2)k(\mathcal{M}_{Pl}^2)-k(\mathcal{M}_{Pl}^2)^2}$	$\frac{8\beta_1+4\beta_2+4(\alpha_2+\alpha_3+4\alpha_4+2\alpha_5+4\alpha_6)k^2-2(\mathcal{M}_{Pl}^2)}{k^2(4(\alpha_2+\alpha_3+4\alpha_4+2\alpha_5+4\alpha_6)(2\beta_1+\beta_2)k^2+2(2\beta_1+\beta_2)(\mathcal{M}_{Pl}^2)-(\mathcal{M}_{Pl}^2)^2)}$	0
$\overset{2^-}{\cdot}\sigma^{\parallel}\dagger^{\alpha\beta\chi}$	0	0	$\frac{4}{4\beta_1+2\beta_2+2(4\alpha_4+\alpha_5)k^2-(\mathcal{M}_{Pl}^2)}$

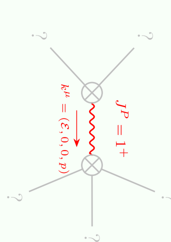
Massive and massless spectra

Pole residue:	$-((8\alpha_5\beta_1^2-32\beta_1^3+8\alpha_5\beta_1\beta_2-48\beta_1^2\beta_2+2\alpha_5\beta_2^2-24\beta_1\beta_2^2-4\beta_2^3+8\alpha_5\beta_1\beta_3-64\beta_1^2\beta_3+4\alpha_5\beta_2\beta_3-64\beta_1\beta_2\beta_3-16\beta_2^2\beta_3+6\alpha_5\beta_3^2-24\beta_1\beta_3^2-12\beta_2\beta_3^2-8\beta_1^2(\mathcal{M}_{Pl}^2)-8\beta_1\beta_2(\mathcal{M}_{Pl}^2)-2\beta_2^2(\mathcal{M}_{Pl}^2)+4\alpha_5\beta_3(\mathcal{M}_{Pl}^2)+8\beta_1\beta_3(\mathcal{M}_{Pl}^2)+4\beta_2\beta_3(\mathcal{M}_{Pl}^2)+6\beta_3^2(\mathcal{M}_{Pl}^2)+\alpha_5(\mathcal{M}_{Pl}^2)^2+4\beta_1(\mathcal{M}_{Pl}^2)^2+2\beta_2(\mathcal{M}_{Pl}^2)^2+2\beta_3(\mathcal{M}_{Pl}^2)^2+2\alpha_2(8\beta_1^2+2\beta_2^2+4\beta_2\beta_3+6\beta_3^2+8\beta_1(\beta_2+\beta_3)+4\beta_3(\mathcal{M}_{Pl}^2)+(\mathcal{M}_{Pl}^2)^2)+4\alpha_4(8\beta_1^2+2\beta_2^2+4\beta_2\beta_3+6\beta_3^2+8\beta_1(\beta_2+\beta_3)+4\beta_3(\mathcal{M}_{Pl}^2)+(\mathcal{M}_{Pl}^2)^2))/((2\alpha_2+4\alpha_4+\alpha_5)(2\beta_1+\beta_2+\beta_3)(2\alpha_5\beta_1-8\beta_1^2+\alpha_5\beta_2-8\beta_1\beta_2-2\beta_2^2+\alpha_5\beta_3-12\beta_1\beta_3-6\beta_2\beta_3+2\alpha_2(2\beta_1+\beta_2+\beta_3)+4\alpha_4(2\beta_1+\beta_2+\beta_3)-2\beta_1(\mathcal{M}_{Pl}^2)-\beta_2(\mathcal{M}_{Pl}^2)+3\beta_3(\mathcal{M}_{Pl}^2)+(\mathcal{M}_{Pl}^2)^2)))>0$
Square mass:	$-\frac{(4\beta_1+2\beta_2-(\mathcal{M}_{Pl}^2))(2\beta_1+\beta_2+3\beta_3+(\mathcal{M}_{Pl}^2))}{2(2\alpha_2+4\alpha_4+\alpha_5)(2\beta_1+\beta_2+\beta_3)}>0$
Spin:	1
Parity:	Odd



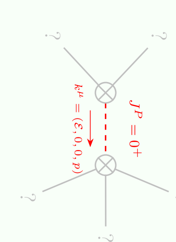
Massive particle

Pole residue:	$(\alpha_2(48\beta_1^2-80\beta_1\beta_2+44\beta_2^2+8\beta_1(\mathcal{M}_{Pl}^2)-12\beta_2(\mathcal{M}_{Pl}^2)+(\mathcal{M}_{Pl}^2)^2)-\alpha_3(48\beta_1^2-80\beta_1\beta_2+44\beta_2^2+8\beta_1(\mathcal{M}_{Pl}^2)-12\beta_2(\mathcal{M}_{Pl}^2)+(\mathcal{M}_{Pl}^2)^2)+4\alpha_4(48\beta_1^2-80\beta_1\beta_2+44\beta_2^2+8\beta_1(\mathcal{M}_{Pl}^2)-12\beta_2(\mathcal{M}_{Pl}^2)+(\mathcal{M}_{Pl}^2)^2)-4\alpha_6(48\beta_1^2-80\beta_1\beta_2+44\beta_2^2+8\beta_1(\mathcal{M}_{Pl}^2)-12\beta_2(\mathcal{M}_{Pl}^2)+(\mathcal{M}_{Pl}^2)^2)-2(2\beta_1-\beta_2)(32\beta_1^2-16\beta_2^2+10\beta_2(\mathcal{M}_{Pl}^2)-(\mathcal{M}_{Pl}^2)^2-4\beta_1(4\beta_2+(\mathcal{M}_{Pl}^2))))/((\alpha_2-\alpha_3+4\alpha_4-4\alpha_6)(2\beta_1-\beta_2)(8\alpha_2\beta_1-8\alpha_3\beta_1+32\alpha_4\beta_1-32\alpha_6\beta_1-32\beta_1^2-4\alpha_2\beta_2+4\alpha_3\beta_2-16\alpha_4\beta_2+16\alpha_6\beta_2+16\beta_1\beta_2+16\beta_2^2+4\beta_1(\mathcal{M}_{Pl}^2)-10\beta_2(\mathcal{M}_{Pl}^2)+(\mathcal{M}_{Pl}^2)^2))>0$
Square mass:	$\frac{-32\beta_1^2+16\beta_2^2-10\beta_2(\mathcal{M}_{Pl}^2)+(\mathcal{M}_{Pl}^2)^2+4\beta_1(4\beta_2+(\mathcal{M}_{Pl}^2))}{4(\alpha_2-\alpha_3+4\alpha_4-4\alpha_6)(2\beta_1-\beta_2)}>0$
Spin:	1
Parity:	Even



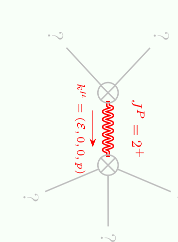
Massive particle

Pole residue:	$(4\alpha_3\beta_1+4\alpha_4\beta_1+2\alpha_5\beta_1+4\alpha_6\beta_1+2\alpha_3\beta_2+2\alpha_4\beta_2+\alpha_5\beta_2+2\alpha_6\beta_2+6\alpha_3\beta_3+6\alpha_4\beta_3+3\alpha_5\beta_3+6\alpha_6\beta_3+2\alpha_3(\mathcal{M}_{Pl}^2)+2\alpha_4(\mathcal{M}_{Pl}^2)+\alpha_5(\mathcal{M}_{Pl}^2)+2\alpha_6(\mathcal{M}_{Pl}^2)+2\beta_1(\mathcal{M}_{Pl}^2)+\beta_2(\mathcal{M}_{Pl}^2)+3\beta_3(\mathcal{M}_{Pl}^2)+6\alpha_1(2\beta_1+\beta_2+3\beta_3+(\mathcal{M}_{Pl}^2))+2\alpha_2(2\beta_1+\beta_2+3\beta_3+(\mathcal{M}_{Pl}^2)))/((6\alpha_1+2\alpha_2+2\alpha_3+2\alpha_4+\alpha_5+2\alpha_6)(2\beta_1+\beta_2+3\beta_3)(\mathcal{M}_{Pl}^2))>0$
Square mass:	$\frac{(\mathcal{M}_{Pl}^2)(2\beta_1+\beta_2+3\beta_3+(\mathcal{M}_{Pl}^2))}{2(6\alpha_1+2\alpha_2+2\alpha_3+2\alpha_4+\alpha_5+2\alpha_6)(2\beta_1+\beta_2+3\beta_3)}>0$
Spin:	0
Parity:	Even

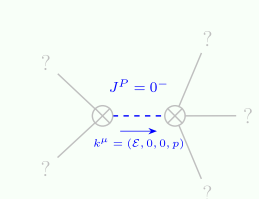


Massive particle

Pole residue:	$(\alpha_2(-4\beta_1-2\beta_2+(\mathcal{M}_{Pl}^2))+\alpha_3(-4\beta_1-2\beta_2+(\mathcal{M}_{Pl}^2))+2(-8\alpha_6\beta_1-4\alpha_6\beta_2+2\alpha_6(\mathcal{M}_{Pl}^2)+2\beta_1(\mathcal{M}_{Pl}^2)+\beta_2(\mathcal{M}_{Pl}^2)+\alpha_5(-4\beta_1-2\beta_2+(\mathcal{M}_{Pl}^2))+\alpha_4(-8\beta_1-4\beta_2+2(\mathcal{M}_{Pl}^2))))/((\alpha_2+\alpha_3+4\alpha_4+2\alpha_5+4\alpha_6)(2\beta_1+\beta_2)(\mathcal{M}_{Pl}^2))>0$
Square mass:	$\frac{(\mathcal{M}_{Pl}^2)(-4\beta_1-2\beta_2+(\mathcal{M}_{Pl}^2))}{4(\alpha_2+\alpha_3+4\alpha_4+2\alpha_5+4\alpha_6)(2\beta_1+\beta_2)}>0$
Spin:	2
Parity:	Even

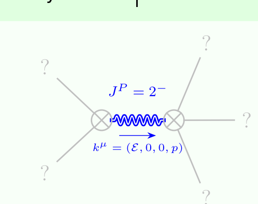


Massive particle



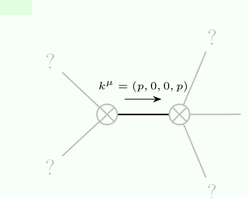
Massive particle

Poleresidue:	$\frac{1}{-2\alpha_4+\alpha_5}>0$
Square mass:	$-\frac{8\beta_1-8\beta_2+(\mathcal{M}_{Pl}^2)}{4\alpha_4-2\alpha_5}>0$
Spin:	0
Parity:	Odd



Massive particle

Pole residue:	$-\frac{2}{4\alpha_4+\alpha_5}>0$
Square mass:	$\frac{-4\beta_1-2\beta_2+(\mathcal{M}_{Pl}^2)}{2(4\alpha_4+\alpha_5)}>0$
Spin:	2
Parity:	Odd



Massless particle

Poleresidue:	$\frac{1}{(\mathcal{M}_{Pl}^2)}>0$
Polarisations:	2

Unitarity conditions

(Timeout after 10 seconds)