Field kinematics

Basic conventions

Minkowski metric tensor	Totally antisymmetric tensor	Four-momentum	Four-momentum norm	Massive rest-frame
$\eta_{\mu\nu}$	$\epsilon\,\eta_{\mu\nu\rho\sigma}$	k^μ	$k^2 == k_\mu\,k^\mu$	$n^\mu == \frac{k^\mu}{k}$

Fundamental fields

Fundamental field	Symmetries	Decomposition in SO(3) irreps	Source
$\Gamma_{\alpha\beta\chi}$	Symmetry[3, $\Gamma^{\bullet1\bullet2\bullet3}$, {$\bullet1 \to -a, \bullet2 \to -b, \bullet3 \to -c$}, StrongGenSet[{}, GenSet[]]]	$-\frac{1}{2}\eta_{\alpha\chi}\Gamma^{\#1}_{1^-\beta} + \frac{1}{2}\eta_{\alpha\beta}\Gamma^{\#1}_{1^-\chi} + \frac{4}{3}\Gamma^{\#1}_{2^-\beta\chi\alpha} + \frac{1}{2}\Gamma^{\#2}_{2^-\alpha\beta\chi} + \frac{1}{2}\Gamma^{\#2}_{2^-\alpha\chi\beta} + \Gamma^{\#1}_{3^-\alpha\beta\chi} + \frac{1}{3}\eta_{\beta\chi}\Gamma^{\#6}_{1^-\alpha} - \frac{1}{6}\eta_{\alpha\chi}\Gamma^{\#6}_{1^-\beta} - \frac{1}{6}\eta_{\alpha\beta}\Gamma^{\#6}_{1^-\chi} + \frac{1}{15}\eta_{\beta\chi}\Gamma^{\#4}_{1^-\alpha} + \frac{1}{15}\eta_{\alpha\chi}\Gamma^{\#4}_{1^-\beta} + \frac{1}{15}\eta_{\alpha\beta}\Gamma^{\#4}_{1^-\chi} + \Gamma^{\#2}_{1^+\beta\chi}\,n_\alpha + \frac{1}{9}\eta_{\beta\chi}\Gamma^{\#3}_{0^+}\,n_\alpha + \frac{1}{3}\Gamma^{\#2}_{2^+\beta\chi}\,n_\alpha + \frac{2}{3}\Gamma^{\#3}_{2^+\beta\chi}\,n_\alpha + \frac{2}{9}\eta_{\beta\chi}\Gamma^{\#4}_{0^+}\,n_\alpha + \frac{1}{3}\eta_{\alpha\chi}\Gamma^{\#1}_{0^+}\,n_\beta - \Gamma^{\#1}_{1^+\alpha\chi}\,n_\beta + \Gamma^{\#1}_{2^+\alpha\chi}\,n_\beta + \frac{1}{9}\eta_{\alpha\chi}\Gamma^{\#3}_{0^+}\,n_\beta - \frac{1}{2}\Gamma^{\#3}_{1^+\alpha\chi}\,n_\beta + \frac{1}{3}\Gamma^{\#2}_{2^+\alpha\chi}\,n_\beta - \frac{1}{3}\Gamma^{\#3}_{2^+\alpha\chi}\,n_\beta - \frac{1}{9}\eta_{\alpha\chi}\Gamma^{\#4}_{0^+}\,n_\beta - \frac{1}{2}\Gamma^{\#1}_{1^-\chi}\,n_\alpha\,n_\beta - \Gamma^{\#2}_{1^-\chi}\,n_\alpha\,n_\beta + \frac{1}{6}\Gamma^{\#6}_{1^-\chi}\,n_\alpha\,n_\beta - \frac{1}{15}\Gamma^{\#4}_{1^-\chi}\,n_\alpha\,n_\beta - \frac{1}{3}\Gamma^{\#5}_{1^-\chi}\,n_\alpha\,n_\beta + \frac{1}{3}\Gamma^{\#3}_{1^-\chi}\,n_\alpha\,n_\beta - \frac{1}{3}\eta_{\alpha\beta}\Gamma^{\#1}_{0^+}\,n_\chi + \Gamma^{\#1}_{1^+\alpha\beta}\,n_\chi - \Gamma^{\#1}_{2^+\alpha\beta}\,n_\chi + \frac{1}{9}\eta_{\alpha\beta}\Gamma^{\#3}_{0^+}\,n_\chi - \frac{1}{2}\Gamma^{\#3}_{1^+\alpha\beta}\,n_\chi + \frac{1}{3}\Gamma^{\#2}_{2^+\alpha\beta}\,n_\chi - \frac{1}{3}\Gamma^{\#3}_{2^+\alpha\beta}\,n_\chi - \frac{1}{9}\eta_{\alpha\beta}\Gamma^{\#4}_{0^+}\,n_\chi + \frac{1}{2}\Gamma^{\#1}_{1^-\beta}\,n_\alpha\,n_\chi + \Gamma^{\#2}_{1^-\beta}\,n_\alpha\,n_\chi + \frac{1}{6}\Gamma^{\#6}_{1^-\beta}\,n_\alpha\,n_\chi - \frac{1}{15}\Gamma^{\#4}_{1^-\beta}\,n_\alpha\,n_\chi - \frac{1}{3}\Gamma^{\#5}_{1^-\beta}\,n_\alpha\,n_\chi + \frac{1}{3}\Gamma^{\#3}_{1^-\beta}\,n_\alpha\,n_\chi - \frac{1}{3}\Gamma^{\#6}_{1^-\alpha}\,n_\beta\,n_\chi - \frac{1}{15}\Gamma^{\#4}_{1^-\alpha}\,n_\beta\,n_\chi + \frac{2}{3}\Gamma^{\#5}_{1^-\alpha}\,n_\beta\,n_\chi + \frac{1}{3}\Gamma^{\#3}_{1^-\alpha}\,n_\beta\,n_\chi - \frac{1}{3}\Gamma^{\#3}_{0^+}\,n_\alpha\,n_\beta\,n_\chi + \Gamma^{\#2}_{0^+}\,n_\alpha\,n_\beta\,n_\chi - \frac{1}{6}\epsilon\,\eta_{\alpha\beta\chi\delta}\,\Gamma^{\#1}_{0^-}\,n^\delta$	$\Delta_{\alpha\beta\chi}$

SO(3) irreps

SO(3) irrep	Symmetries	Expansion in terms of the fundamental field	Source
$\Gamma^{\#1}_{0^+}$	Symmetry[0, $\Gamma^{\#1}_{0^+}$, {}, StrongGenSet[{}, GenSet[]]]	$-\frac{1}{2}\Gamma^{\alpha\ \beta}_{\ \alpha}\,n_\beta + \frac{1}{2}\Gamma^{\alpha\beta}_{\ \ \alpha}\,n_\beta$	$\Delta^{\#1}_{0^+}$
$\Gamma^{\#2}_{0^+}$	Symmetry[0, $\Gamma^{\#2}_{0^+}$, {}, StrongGenSet[{}, GenSet[]]]	$\Gamma^{\alpha\beta\chi}\,n_\alpha\,n_\beta\,n_\chi$	$\Delta^{\#2}_{0^+}$
$\Gamma^{\#3}_{0^+}$	Symmetry[0, $\Gamma^{\#3}_{0^+}$, {}, StrongGenSet[{}, GenSet[]]]	$\Gamma^{\alpha\beta}_{\ \ \beta}\,n_\alpha + \Gamma^{\alpha\ \beta}_{\ \alpha}\,n_\beta + \Gamma^{\alpha\beta}_{\ \ \alpha}\,n_\beta - 3\,\Gamma^{\alpha\beta\chi}\,n_\alpha\,n_\beta\,n_\chi$	$\Delta^{\#3}_{0^+}$
$\Gamma^{\#4}_{0^+}$	Symmetry[0, $\Gamma^{\#4}_{0^+}$, {}, StrongGenSet[{}, GenSet[]]]	$\Gamma^{\alpha\beta}_{\ \ \beta}\,n_\alpha - \frac{1}{2}\Gamma^{\alpha\ \beta}_{\ \alpha}\,n_\beta - \frac{1}{2}\Gamma^{\alpha\beta}_{\ \ \alpha}\,n_\beta$	$\Delta^{\#4}_{0^+}$
$\Gamma^{\#1}_{0^-}$	Symmetry[0, $\Gamma^{\#1}_{0^-}$, {}, StrongGenSet[{}, GenSet[]]]	$\epsilon\,\eta_{\alpha\beta\chi\delta}\,\Gamma^{\alpha\beta\chi}\,n^\delta$	$\Delta^{\#1}_{0^-}$
$\Gamma^{\#1}_{1^+\alpha\beta}$	Symmetry[2, $\Gamma^{\#1}_{1^+}{}^{\bullet1\bullet2}$, {$\bullet1 \to -a, \bullet2 \to -b$}, StrongGenSet[{1, 2}, GenSet[-(1,2)]]]	$\frac{1}{4}\Gamma_{\alpha\beta}^{\ \ \chi}\,n_\chi - \frac{1}{4}\Gamma_{\alpha\ \beta}^{\ \chi}\,n_\chi - \frac{1}{4}\Gamma_{\beta\alpha}^{\ \ \chi}\,n_\chi + \frac{1}{4}\Gamma_{\beta\ \alpha}^{\ \chi}\,n_\chi - \frac{1}{4}\Gamma_{\beta\ \ \alpha}^{\ \chi\ \delta}\,n_\alpha\,n_\chi\,n_\delta + \frac{1}{4}\Gamma^{\chi\delta}_{\ \ \beta}\,n_\alpha\,n_\chi\,n_\delta + \frac{1}{4}\Gamma_{\alpha\ \ \delta}^{\ \chi\ \delta}\,n_\beta\,n_\chi\,n_\delta - \frac{1}{4}\Gamma^{\chi\delta}_{\ \ \alpha}\,n_\beta\,n_\chi\,n_\delta$	$\Delta^{\#1}_{1^+\alpha\beta}$
$\Gamma^{\#2}_{1^+\alpha\beta}$	Symmetry[2, $\Gamma^{\#2}_{1^+}{}^{\bullet1\bullet2}$, {$\bullet1 \to -a, \bullet2 \to -b$}, StrongGenSet[{1, 2}, GenSet[-(1,2)]]]	$\frac{1}{2}\Gamma^{\ \ \chi}_{\alpha\beta}\,n_\chi - \frac{1}{2}\Gamma^{\ \chi}_{\beta\alpha}\,n_\chi + \frac{1}{2}\Gamma^{\ \chi\ \delta}_{\beta\ \ \alpha}\,n_\alpha\,n_\chi\,n_\delta - \frac{1}{2}\Gamma^{\chi\delta}_{\ \ \beta}\,n_\alpha\,n_\chi\,n_\delta - \frac{1}{2}\Gamma^{\ \chi\ \delta}_{\alpha\ \ \beta}\,n_\beta\,n_\chi\,n_\delta + \frac{1}{2}\Gamma^{\chi\delta}_{\ \ \alpha}\,n_\beta\,n_\chi\,n_\delta$	$\Delta^{\#2}_{1^+\alpha\beta}$
$\Gamma^{\#3}_{1^+\alpha\beta}$	Symmetry[2, $\Gamma^{\#3}_{1^+}{}^{\bullet1\bullet2}$, {$\bullet1 \to -a, \bullet2 \to -b$}, StrongGenSet[{1, 2}, GenSet[-(1,2)]]]	$-\frac{1}{2}\Gamma_{\alpha\beta}^{\ \ \chi}\,n_\chi - \frac{1}{2}\Gamma_{\alpha\ \beta}^{\ \chi}\,n_\chi + \frac{1}{2}\Gamma_{\beta\alpha}^{\ \ \chi}\,n_\chi + \frac{1}{2}\Gamma_{\beta\ \alpha}^{\ \chi}\,n_\chi - \Gamma^{\chi\delta}_{\ \ \beta}\,n_\alpha\,n_\chi\,n_\delta + \frac{1}{2}\Gamma^{\ \chi\ \delta}_{\beta\ \ \alpha}\,n_\alpha\,n_\chi\,n_\delta + \frac{1}{2}\Gamma^{\chi\delta}_{\ \ \beta}\,n_\alpha\,n_\chi\,n_\delta + \Gamma_{\alpha\ \ \delta}^{\ \chi\delta}\,n_\beta\,n_\chi\,n_\delta - \frac{1}{2}\Gamma^{\ \chi\ \delta}_{\alpha\ \ \beta}\,n_\beta\,n_\chi\,n_\delta - \frac{1}{2}\Gamma^{\chi\delta}_{\ \ \alpha}\,n_\beta\,n_\chi\,n_\delta$	$\Delta^{\#3}_{1^+\alpha\beta}$
$\Gamma^{\#1}_{1^-\alpha}$	Symmetry[1, $\Gamma^{\#1}_{1^-}{}^{\bullet1}$, {$\bullet1 \to -a$}, StrongGenSet[{}, GenSet[]]]	$-\frac{1}{2}\Gamma^{\ \beta}_{\alpha\beta} + \frac{1}{2}\Gamma^{\ \beta}_{\beta\alpha} - \frac{1}{2}\Gamma^{\beta\ \chi}_{\ \alpha}\,n_\beta\,n_\chi + \frac{1}{2}\Gamma^{\beta\chi}_{\ \ \beta}\,n_\alpha\,n_\chi + \frac{1}{2}\Gamma^{\beta\ \chi}_{\ \alpha}\,n_\beta\,n_\chi - \frac{1}{2}\Gamma^{\beta\chi}_{\ \ \alpha}\,n_\beta\,n_\chi$	$\Delta^{\#1}_{1^-\alpha}$
$\Gamma^{\#2}_{1^-\alpha}$	Symmetry[1, $\Gamma^{\#2}_{1^-}{}^{\bullet1}$, {$\bullet1 \to -a$}, StrongGenSet[{}, GenSet[]]]	$\frac{1}{2}\Gamma^{\beta\ \chi}_{\ \alpha}\,n_\beta\,n_\chi - \frac{1}{2}\Gamma^{\beta\chi}_{\ \ \alpha}\,n_\beta\,n_\chi$	$\Delta^{\#2}_{1^-\alpha}$
$\Gamma^{\#3}_{1^-\alpha}$	Symmetry[1, $\Gamma^{\#3}_{1^-}{}^{\bullet1}$, {$\bullet1 \to -a$}, StrongGenSet[{}, GenSet[]]]	$\Gamma_{\alpha}^{\ \beta\chi}\,n_\beta\,n_\chi + \Gamma^{\beta\ \chi}_{\ \alpha}\,n_\beta\,n_\chi + \Gamma^{\beta\chi}_{\ \ \alpha}\,n_\beta\,n_\chi - 3\,\Gamma^{\beta\chi\delta}\,n_\alpha\,n_\beta\,n_\chi\,n_\delta$	$\Delta^{\#3}_{1^-\alpha}$
$\Gamma^{\#4}_{1^-\alpha}$	Symmetry[1, $\Gamma^{\#4}_{1^-}{}^{\bullet1}$, {$\bullet1 \to -a$}, StrongGenSet[{}, GenSet[]]]	$\Gamma_{\alpha\ \beta}^{\ \beta} + \Gamma^{\ \beta}_{\alpha\beta} + \Gamma^{\ \beta}_{\beta\alpha} - \Gamma^{\beta\chi}_{\ \ \chi}\,n_\alpha\,n_\beta - \Gamma^{\beta\ \chi}_{\ \chi}\,n_\alpha\,n_\chi - \Gamma^{\beta\chi}_{\ \ \beta}\,n_\alpha\,n_\chi - \Gamma^{\ \beta\chi}_{\alpha}\,n_\beta\,n_\chi - \Gamma^{\beta\ \chi}_{\ \alpha}\,n_\beta\,n_\chi - \Gamma^{\beta\chi}_{\ \ \alpha}\,n_\beta\,n_\chi + 3\,\Gamma^{\beta\chi\delta}\,n_\alpha\,n_\beta\,n_\chi\,n_\delta$	$\Delta^{\#4}_{1^-\alpha}$
$\Gamma^{\#5}_{1^-\alpha}$	Symmetry[1, $\Gamma^{\#5}_{1^-}{}^{\bullet1}$, {$\bullet1 \to -a$}, StrongGenSet[{}, GenSet[]]]	$\Gamma^{\ \beta\chi}_{\alpha}\,n_\beta\,n_\chi - \frac{1}{2}\Gamma^{\beta\ \chi}_{\ \alpha}\,n_\beta\,n_\chi - \frac{1}{2}\Gamma^{\beta\chi}_{\ \ \alpha}\,n_\beta\,n_\chi$	$\Delta^{\#5}_{1^-\alpha}$
$\Gamma^{\#6}_{1^-\alpha}$	Symmetry[1, $\Gamma^{\#6}_{1^-}{}^{\bullet1}$, {$\bullet1 \to -a$}, StrongGenSet[{}, GenSet[]]]	$\Gamma_{\alpha\ \beta}^{\ \beta} - \frac{1}{2}\Gamma^{\ \beta}_{\alpha\beta} - \frac{1}{2}\Gamma^{\ \beta}_{\beta\alpha} - \Gamma^{\beta\chi}_{\ \ \chi}\,n_\alpha\,n_\beta + \frac{1}{2}\Gamma^{\beta\ \chi}_{\ \chi}\,n_\alpha\,n_\chi + \frac{1}{2}\Gamma^{\beta\chi}_{\ \ \beta}\,n_\alpha\,n_\chi - \Gamma^{\ \beta\chi}_{\alpha}\,n_\beta\,n_\chi + \frac{1}{2}\Gamma^{\beta\ \chi}_{\ \alpha}\,n_\beta\,n_\chi + \frac{1}{2}\Gamma^{\beta\chi}_{\ \ \alpha}\,n_\beta\,n_\chi$	$\Delta^{\#6}_{1^-\alpha}$
$\Gamma^{\#1}_{2^+\alpha\beta}$	Symmetry[2, $\Gamma^{\#1}_{2^+}{}^{\bullet1\bullet2}$, {$\bullet1 \to -a, \bullet2 \to -b$}, StrongGenSet[{1, 2}, GenSet[(1,2)]]]	$-\frac{1}{4}\Gamma_{\alpha\beta}^{\ \ \chi}\,n_\chi + \frac{1}{4}\Gamma_{\alpha\ \beta}^{\ \chi}\,n_\chi - \frac{1}{4}\Gamma_{\beta\alpha}^{\ \ \chi}\,n_\chi + \frac{1}{4}\Gamma_{\beta\ \alpha}^{\ \chi}\,n_\chi + \frac{1}{6}\eta_{\alpha\beta}\Gamma^{\chi\ \delta}_{\ \chi}\,n_\delta - \frac{1}{6}\eta_{\alpha\beta}\Gamma^{\chi\delta}_{\ \ \chi}\,n_\delta - \frac{1}{6}\Gamma^{\chi\ \delta}_{\ \chi}\,n_\alpha\,n_\beta\,n_\delta + \frac{1}{6}\Gamma^{\chi\delta}_{\ \ \chi}\,n_\alpha\,n_\beta\,n_\delta + \frac{1}{4}\Gamma^{\ \chi\ \delta}_{\beta\ \ \alpha}\,n_\alpha\,n_\chi\,n_\delta - \frac{1}{4}\Gamma^{\chi\delta}_{\ \ \beta}\,n_\alpha\,n_\chi\,n_\delta + \frac{1}{4}\Gamma^{\ \chi\ \delta}_{\alpha\ \ \beta}\,n_\beta\,n_\chi\,n_\delta - \frac{1}{4}\Gamma^{\chi\delta}_{\ \ \alpha}\,n_\beta\,n_\chi\,n_\delta$	$\Delta^{\#1}_{2^+\alpha\beta}$
$\Gamma^{\#2}_{2^+\alpha\beta}$	Symmetry[2, $\Gamma^{\#2}_{2^+}{}^{\bullet1\bullet2}$, {$\bullet1 \to -a, \bullet2 \to -b$}, StrongGenSet[{1, 2}, GenSet[(1,2)]]]	$\frac{1}{2}\Gamma_{\alpha\beta}^{\ \ \chi}\,n_\chi + \frac{1}{2}\Gamma_{\alpha\ \beta}^{\ \chi}\,n_\chi + \frac{1}{2}\Gamma_{\beta\alpha}^{\ \ \chi}\,n_\chi + \frac{1}{2}\Gamma_{\beta\ \alpha}^{\ \chi}\,n_\chi + \frac{1}{2}\Gamma^{\ \chi}_{\alpha\beta}\,n_\chi + \frac{1}{2}\Gamma^{\ \chi}_{\beta\alpha}\,n_\chi - \frac{1}{3}\eta_{\alpha\beta}\Gamma^{\chi\ \delta}_{\ \chi}\,n_\delta + \frac{1}{3}\Gamma^{\chi\delta}_{\ \ \chi}\,n_\alpha\,n_\beta\,n_\delta - \frac{1}{3}\eta_{\alpha\beta}\Gamma^{\chi\ \delta}_{\ \chi}\,n_\delta - \frac{1}{3}\eta_{\alpha\beta}\Gamma^{\chi\delta}_{\ \ \chi}\,n_\delta + \frac{1}{3}\Gamma^{\ \chi\ \delta}_{\alpha}\,n_\alpha\,n_\beta\,n_\delta + \frac{1}{3}\Gamma^{\chi\delta}_{\ \ \chi}\,n_\alpha\,n_\beta\,n_\delta - \Gamma^{\chi\delta}_{\ \ \beta}\,n_\alpha\,n_\chi\,n_\delta - \Gamma^{\ \chi\ \delta}_{\beta\ \ \alpha}\,n_\alpha\,n_\chi\,n_\delta - \Gamma^{\chi\delta}_{\ \ \beta}\,n_\alpha\,n_\chi\,n_\delta - \Gamma^{\ \chi\delta}_{\alpha}\,n_\beta\,n_\chi\,n_\delta - \Gamma^{\chi\ \delta}_{\ \alpha}\,n_\beta\,n_\chi\,n_\delta - \Gamma^{\chi\delta}_{\ \ \alpha}\,n_\beta\,n_\chi\,n_\delta + \eta_{\alpha\beta}\Gamma^{\chi\delta\epsilon}\,n_\chi\,n_\delta\,n_\epsilon + 2\,\Gamma^{\chi\delta\epsilon}\,n_\alpha\,n_\beta\,n_\chi\,n_\delta\,n_\epsilon$	$\Delta^{\#2}_{2^+\alpha\beta}$
$\Gamma^{\#3}_{2^+\alpha\beta}$	Symmetry[2, $\Gamma^{\#3}_{2^+}{}^{\bullet1\bullet2}$, {$\bullet1 \to -a, \bullet2 \to -b$}, StrongGenSet[{1, 2}, GenSet[(1,2)]]]	$-\frac{1}{4}\Gamma_{\alpha\beta}^{\ \ \chi}\,n_\chi - \frac{1}{4}\Gamma_{\alpha\ \beta}^{\ \chi}\,n_\chi - \frac{1}{4}\Gamma_{\beta\alpha}^{\ \ \chi}\,n_\chi - \frac{1}{4}\Gamma_{\beta\ \alpha}^{\ \chi}\,n_\chi + \frac{1}{2}\Gamma^{\ \chi}_{\alpha\beta}\,n_\chi + \frac{1}{2}\Gamma^{\ \chi}_{\beta\alpha}\,n_\chi - \frac{1}{3}\eta_{\alpha\beta}\Gamma^{\chi\ \delta}_{\ \chi}\,n_\delta + \frac{1}{3}\Gamma^{\chi\delta}_{\ \ \chi}\,n_\alpha\,n_\beta\,n_\delta + \frac{1}{6}\eta_{\alpha\beta}\Gamma^{\chi\ \delta}_{\ \chi}\,n_\delta + \frac{1}{6}\eta_{\alpha\beta}\Gamma^{\chi\delta}_{\ \ \chi}\,n_\delta - \frac{1}{6}\Gamma^{\chi\ \delta}_{\ \chi}\,n_\alpha\,n_\beta\,n_\delta - \frac{1}{6}\Gamma^{\chi\delta}_{\ \ \chi}\,n_\alpha\,n_\beta\,n_\delta + \frac{1}{2}\Gamma^{\chi\delta}_{\beta}\,n_\alpha\,n_\chi\,n_\delta - \frac{1}{4}\Gamma^{\ \chi\delta}_{\beta}\,n_\alpha\,n_\chi\,n_\delta - \frac{1}{4}\Gamma^{\chi\delta}_{\ \ \beta}\,n_\alpha\,n_\chi\,n_\delta + \frac{1}{2}\Gamma^{\ \chi\delta}_{\alpha}\,n_\beta\,n_\chi\,n_\delta - \frac{1}{4}\Gamma^{\chi\ \delta}_{\ \alpha}\,n_\beta\,n_\chi\,n_\delta - \frac{1}{4}\Gamma^{\chi\delta}_{\ \ \alpha}\,n_\beta\,n_\chi\,n_\delta$	$\Delta^{\#3}_{2^+\alpha\beta}$
$\Gamma^{\#1}_{2^-\alpha\beta\chi}$	Symmetry[3, $\Gamma^{\#1}_{2^-}{}^{\bullet1\bullet2\bullet3}$, {$\bullet1 \to -a, \bullet2 \to -b, \bullet3 \to -c$}, StrongGenSet[{1, 2}, GenSet[-(1,2)]]]	$-\frac{1}{8}\Gamma_{\alpha\beta\chi} + \frac{1}{8}\Gamma_{\alpha\chi\beta} + \frac{1}{8}\Gamma_{\beta\alpha\chi} - \frac{1}{8}\Gamma_{\beta\chi\alpha} + \frac{1}{4}\Gamma_{\chi\alpha\beta} - \frac{1}{4}\Gamma_{\chi\beta\alpha} - \frac{3}{16}\eta_{\beta\chi}\Gamma^{\ \delta}_{\alpha\delta} + \frac{3}{16}\eta_{\alpha\chi}\Gamma^{\ \delta}_{\beta\delta} + \frac{3}{16}\eta_{\beta\chi}\Gamma^{\ \delta}_{\delta\alpha} - \frac{3}{16}\eta_{\alpha\chi}\Gamma^{\ \delta}_{\delta\beta} - \frac{3}{16}\Gamma^{\ \delta}_{\beta\delta}\,n_\alpha\,n_\chi + \frac{3}{16}\Gamma^{\ \delta}_{\delta\beta}\,n_\alpha\,n_\chi + \frac{3}{16}\Gamma^{\ \delta}_{\alpha\delta}\,n_\beta\,n_\chi - \frac{3}{16}\Gamma^{\ \delta}_{\delta\alpha}\,n_\beta\,n_\chi + \frac{1}{8}\Gamma^{\ \delta}_{\beta\chi}\,n_\alpha\,n_\delta - \frac{1}{8}\Gamma^{\ \delta}_{\beta\chi}\,n_\alpha\,n_\delta + \frac{1}{4}\Gamma^{\ \delta}_{\chi\beta}\,n_\alpha\,n_\delta - \frac{1}{4}\Gamma^{\ \delta}_{\chi\ \beta}\,n_\alpha\,n_\delta + \frac{1}{8}\Gamma^{\ \delta}_{\beta\chi}\,n_\alpha\,n_\delta - \frac{1}{8}\Gamma^{\ \delta}_{\chi\beta}\,n_\alpha\,n_\delta - \frac{1}{8}\Gamma^{\ \delta}_{\alpha\chi}\,n_\beta\,n_\delta + \frac{1}{8}\Gamma^{\ \delta}_{\alpha\ \chi}\,n_\beta\,n_\delta - \frac{1}{8}\Gamma^{\ \delta}_{\chi\alpha}\,n_\beta\,n_\delta + \frac{1}{8}\Gamma^{\ \delta}_{\chi\ \alpha}\,n_\beta\,n_\delta - \frac{1}{4}\Gamma^{\ \delta}_{\chi\ \alpha}\,n_\beta\,n_\delta + \frac{1}{4}\Gamma^{\ \delta}_{\chi\ \alpha}\,n_\beta\,n_\delta - \frac{1}{8}\Gamma^{\ \delta}_{\alpha\chi}\,n_\beta\,n_\delta + \frac{1}{8}\Gamma^{\ \delta}_{\chi\alpha}\,n_\beta\,n_\delta - \frac{1}{8}\Gamma^{\ \delta}_{\beta\alpha}\,n_\chi\,n_\delta + \frac{1}{8}\Gamma^{\ \delta}_{\beta\ \alpha}\,n_\chi\,n_\delta - \frac{1}{4}\Gamma^{\delta}_{\ \alpha\beta}\,n_\chi\,n_\delta + \frac{1}{4}\Gamma^{\delta}_{\ \beta\alpha}\,n_\chi\,n_\delta - \frac{3}{16}\Gamma_{\beta\chi}\Gamma^{\delta\ \epsilon}_{\ \delta}\,n_\alpha\,n_\epsilon + \frac{3}{16}\eta_{\beta\chi}\Gamma^{\delta\epsilon}_{\ \delta}\,n_\alpha\,n_\epsilon + \frac{3}{16}\eta_{\alpha\chi}\Gamma^{\delta\ \epsilon}_{\ \delta}\,n_\beta\,n_\epsilon - \frac{3}{16}\eta_{\alpha\chi}\Gamma^{\delta\epsilon}_{\ \delta}\,n_\beta\,n_\epsilon + \frac{3}{16}\eta_{\beta\chi}\Gamma^{\delta\ \epsilon}_{\ \delta}\,n_\alpha\,n_\epsilon - \frac{3}{16}\eta_{\alpha\chi}\Gamma^{\delta\ \epsilon}_{\beta\ \delta}\,n_\epsilon - \frac{3}{16}\eta_{\beta\chi}\Gamma^{\delta\epsilon}_{\ \delta}\,n_\alpha\,n_\epsilon + \frac{3}{16}\eta_{\alpha\chi}\Gamma^{\delta\epsilon}_{\ \delta}\,n_\beta\,n_\epsilon - \frac{1}{16}\Gamma^{\delta\ \epsilon}_{\ \alpha}\,n_\beta\,n_\chi\,n_\delta\,n_\epsilon + \frac{3}{16}\Gamma^{\delta\epsilon}_{\ \alpha}\,n_\beta\,n_\chi\,n_\delta\,n_\epsilon - \frac{3}{16}\Gamma^{\delta\epsilon}_{\ \beta}\,n_\alpha\,n_\chi\,n_\delta\,n_\epsilon$	$\Delta^{\#1}_{2^-\alpha\beta\chi}$
$\Gamma^{\#2}_{2^-\alpha\beta\chi}$	Symmetry[3, $\Gamma^{\#2}_{2^-}{}^{\bullet1\bullet2\bullet3}$, {$\bullet1 \to -a, \bullet2 \to -b, \bullet3 \to -c$}, StrongGenSet[{1, 2}, GenSet[-(1,2)]]]	$\frac{1}{3}\Gamma_{\alpha\beta\chi} + \frac{1}{3}\Gamma_{\alpha\chi\beta} - \frac{1}{3}\eta_{\beta\chi}\Gamma^{\ \delta}_{\alpha\delta} - \frac{1}{3}\Gamma_{\beta\alpha\chi} - \frac{1}{3}\Gamma_{\beta\chi\alpha} + \frac{1}{3}\eta_{\alpha\chi}\Gamma^{\ \delta}_{\beta\delta} + \frac{1}{6}\eta_{\beta\chi}\Gamma^{\ \delta}_{\delta\alpha} - \frac{1}{6}\eta_{\alpha\chi}\Gamma^{\ \delta}_{\beta\delta} + \frac{1}{6}\eta_{\beta\chi}\Gamma^{\ \delta}_{\delta\alpha} - \frac{1}{6}\eta_{\alpha\chi}\Gamma^{\ \delta}_{\delta\beta} - \frac{1}{3}\Gamma^{\ \delta}_{\beta\delta}\,n_\alpha\,n_\chi + \frac{1}{6}\Gamma^{\ \delta}_{\delta\beta}\,n_\alpha\,n_\chi + \frac{1}{6}\Gamma^{\ \delta}_{\delta\beta}\,n_\alpha\,n_\chi + \frac{1}{3}\Gamma^{\ \delta}_{\alpha\delta}\,n_\beta\,n_\chi - \frac{1}{6}\Gamma^{\ \delta}_{\alpha\delta}\,n_\beta\,n_\chi - \frac{1}{6}\Gamma^{\ \delta}_{\delta\alpha}\,n_\beta\,n_\chi + \frac{1}{3}\Gamma^{\ \delta}_{\beta\chi}\,n_\alpha\,n_\delta + \frac{1}{3}\Gamma^{\ \delta}_{\beta\ \chi}\,n_\alpha\,n_\delta - \frac{1}{3}\Gamma^{\ \delta}_{\chi\beta}\,n_\alpha\,n_\delta + \frac{1}{3}\Gamma^{\ \delta}_{\chi\beta}\,n_\alpha\,n_\delta - \frac{1}{3}\Gamma^{\ \delta}_{\alpha\chi}\,n_\beta\,n_\delta + \frac{1}{3}\eta_{\beta\chi}\Gamma^{\delta\epsilon}_{\ \delta}\,n_\alpha\,n_\delta - \frac{1}{3}\Gamma_{\alpha\ \chi}^{\ \delta}\,n_\beta\,n_\delta - \frac{1}{3}\Gamma^{\ \delta}_{\chi\alpha}\,n_\beta\,n_\delta + \frac{1}{3}\Gamma^{\ \delta}_{\chi\ \alpha}\,n_\beta\,n_\delta + \frac{1}{3}\Gamma^{\ \delta}_{\beta\alpha}\,n_\chi\,n_\delta - \frac{1}{6}\eta_{\beta\chi}\Gamma^{\delta\ \epsilon}_{\ \delta}\,n_\alpha\,n_\epsilon - \frac{1}{6}\eta_{\beta\chi}\Gamma^{\delta\epsilon}_{\ \delta}\,n_\alpha\,n_\epsilon + \frac{1}{6}\eta_{\alpha\chi}\Gamma^{\delta\ \epsilon}_{\ \delta}\,n_\beta\,n_\epsilon + \frac{1}{6}\eta_{\alpha\chi}\Gamma^{\delta\epsilon}_{\ \delta}\,n_\beta\,n_\epsilon + \frac{1}{3}\eta_{\alpha\chi}\Gamma^{\delta\ \epsilon}_{\beta\ \delta}\,n_\epsilon - \frac{1}{6}\eta_{\beta\chi}\Gamma^{\delta\ \epsilon}_{\alpha\ \delta}\,n_\epsilon + \frac{1}{6}\eta_{\alpha\chi}\Gamma^{\delta\ \epsilon}_{\beta\ \delta}\,n_\epsilon - \frac{1}{6}\eta_{\beta\chi}\Gamma^{\delta\epsilon}_{\ \delta}\,n_\alpha\,n_\epsilon + \frac{1}{6}\eta_{\alpha\chi}\Gamma^{\delta\epsilon}_{\ \delta}\,n_\beta\,n_\epsilon - \frac{1}{3}\Gamma^{\delta\epsilon}_{\ \delta}\,n_\alpha\,n_\chi\,n_\delta\,n_\epsilon + \frac{1}{6}\Gamma^{\delta\ \epsilon}_{\ \alpha}\,n_\beta\,n_\chi\,n_\delta\,n_\epsilon + \frac{1}{3}\Gamma^{\delta\epsilon}_{\ \alpha}\,n_\beta\,n_\chi\,n_\delta\,n_\epsilon + \frac{1}{3}\Gamma^{\ \delta\ \epsilon}_{\alpha}\,n_\beta\,n_\chi\,n_\delta\,n_\epsilon - \frac{1}{6}\Gamma^{\ \delta\ \epsilon}_{\beta}\,n_\alpha\,n_\chi\,n_\delta\,n_\epsilon - \frac{1}{6}\Gamma^{\delta\epsilon}_{\ \beta}\,n_\alpha\,n_\chi\,n_\delta\,n_\epsilon$	$\Delta^{\#2}_{2^-\alpha\beta\chi}$
$\Gamma^{\#1}_{3^-\alpha\beta\chi}$	Symmetry[3, $\Gamma^{\#1}_{3^-}{}^{\bullet1\bullet2\bullet3}$, {$\bullet1 \to -a, \bullet2 \to -b, \bullet3 \to -c$}, StrongGenSet[{1, 2, 3}, GenSet[(1,2), (2,3)]]]	$\frac{1}{6}\Gamma_{\alpha\beta\chi} + \frac{1}{6}\Gamma_{\alpha\chi\beta} - \frac{1}{15}\eta_{\beta\chi}\Gamma^{\ \delta}_{\alpha\delta} + \frac{1}{6}\Gamma_{\beta\alpha\chi} + \frac{1}{6}\Gamma_{\beta\chi\alpha} - \frac{1}{15}\eta_{\alpha\chi}\Gamma^{\ \delta}_{\beta\delta} + \frac{1}{6}\Gamma_{\chi\alpha\beta} + \frac{1}{6}\Gamma_{\chi\beta\alpha} - \frac{1}{15}\eta_{\alpha\beta}\Gamma^{\ \delta}_{\chi\delta} - \frac{1}{15}\eta_{\beta\chi}\Gamma^{\ \delta}_{\alpha\delta} - \frac{1}{15}\eta_{\alpha\chi}\Gamma^{\ \delta}_{\beta\delta} - \frac{1}{15}\eta_{\alpha\beta}\Gamma^{\ \delta}_{\chi\delta} - \frac{1}{15}\eta_{\beta\chi}\Gamma^{\ \delta}_{\delta\alpha} - \frac{1}{15}\eta_{\alpha\chi}\Gamma^{\ \delta}_{\delta\beta} - \frac{1}{15}\eta_{\alpha\beta}\Gamma^{\ \delta}_{\delta\chi} + \frac{1}{15}\Gamma^{\ \delta}_{\chi\delta}\,n_\alpha\,n_\beta + \frac{1}{15}\Gamma^{\delta}_{\ \chi\delta}\,n_\alpha\,n_\beta + \frac{1}{15}\Gamma^{\ \delta}_{\delta\chi}\,n_\alpha\,n_\beta + \frac{1}{15}\Gamma^{\ \delta}_{\beta\delta}\,n_\alpha\,n_\chi + \frac{1}{15}\Gamma^{\delta}_{\ \beta\delta}\,n_\alpha\,n_\chi + \frac{1}{15}\Gamma^{\ \delta}_{\delta\beta}\,n_\alpha\,n_\chi + \frac{1}{15}\Gamma^{\ \delta}_{\alpha\delta}\,n_\beta\,n_\chi + \frac{1}{15}\Gamma^{\delta}_{\ \alpha\delta}\,n_\beta\,n_\chi + \frac{1}{15}\Gamma^{\ \delta}_{\delta\alpha}\,n_\beta\,n_\chi - \frac{1}{6}\Gamma^{\ \delta}_{\beta\chi}\,n_\alpha\,n_\delta - \frac{1}{6}\Gamma^{\ \delta}_{\beta\ \chi}\,n_\alpha\,n_\delta - \frac{1}{6}\Gamma^{\ \delta}_{\chi\beta}\,n_\alpha\,n_\delta - \frac{1}{6}\Gamma^{\delta}_{\ \chi\beta}\,n_\alpha\,n_\delta - \frac{1}{6}\Gamma^{\ \delta}_{\chi\beta}\,n_\alpha\,n_\delta - \frac{1}{6}\Gamma^{\delta}_{\ \chi\beta}\,n_\alpha\,n_\delta + \frac{1}{15}\Gamma^{\delta\epsilon}_{\ \alpha\delta}\,n_\alpha\,n_\delta - \frac{1}{6}\Gamma^{\ \delta}_{\alpha\chi}\,n_\beta\,n_\delta - \frac{1}{6}\Gamma^{\ \delta}_{\alpha\ \chi}\,n_\beta\,n_\delta - \frac{1}{6}\Gamma^{\ \delta}_{\chi\alpha}\,n_\beta\,n_\delta - \frac{1}{6}\Gamma^{\delta}_{\ \chi\alpha}\,n_\beta\,n_\delta - \frac{1}{6}\Gamma^{\ \delta}_{\chi\alpha}\,n_\beta\,n_\delta - \frac{1}{6}\Gamma^{\delta}_{\ \chi\alpha}\,n_\beta\,n_\delta + \frac{1}{15}\eta_{\alpha\chi}\Gamma^{\delta\epsilon}_{\ \beta\delta}\,n_\epsilon - \frac{1}{6}\Gamma_{\alpha\beta}^{\ \ \delta}\,n_\chi\,n_\delta - \frac{1}{6}\Gamma^{\ \delta}_{\alpha\ \beta}\,n_\chi\,n_\delta - \frac{1}{6}\Gamma^{\ \delta}_{\beta\alpha}\,n_\chi\,n_\delta - \frac{1}{6}\Gamma^{\delta}_{\ \beta\alpha}\,n_\chi\,n_\delta + \frac{1}{15}\eta_{\alpha\beta}\Gamma^{\delta\epsilon}_{\ \chi\delta}\,n_\epsilon - \frac{1}{5}\Gamma^{\delta\epsilon}_{\ \delta}\,n_\alpha\,n_\beta\,n_\chi\,n_\epsilon - \frac{1}{5}\Gamma^{\delta\ \epsilon}_{\ \delta}\,n_\alpha\,n_\beta\,n_\chi\,n_\epsilon + \frac{1}{15}\eta_{\beta\chi}\Gamma^{\delta\ \epsilon}_{\ \delta}\,n_\alpha\,n_\epsilon + \frac{1}{15}\eta_{\beta\chi}\Gamma^{\delta\epsilon}_{\ \delta}\,n_\alpha\,n_\epsilon + \frac{1}{15}\eta_{\alpha\chi}\Gamma^{\delta\ \epsilon}_{\ \delta}\,n_\beta\,n_\epsilon + \frac{1}{15}\eta_{\alpha\chi}\Gamma^{\delta\epsilon}_{\ \delta}\,n_\beta\,n_\epsilon + \frac{1}{15}\eta_{\alpha\beta}\Gamma^{\delta\ \epsilon}_{\ \chi}\,n_\chi\,n_\epsilon + \frac{1}{15}\eta_{\alpha\beta}\Gamma^{\delta\epsilon}_{\ \chi}\,n_\chi\,n_\epsilon - \frac{1}{5}\Gamma^{\delta\ \epsilon}_{\ \delta}\,n_\alpha\,n_\beta\,n_\chi\,n_\epsilon - \frac{1}{5}\Gamma^{\delta\epsilon}_{\ \delta}\,n_\alpha\,n_\beta\,n_\chi\,n_\epsilon + \frac{1}{15}\eta_{\beta\chi}\Gamma^{\delta\ \epsilon}_{\alpha\ \delta}\,n_\epsilon + \frac{1}{15}\eta_{\alpha\chi}\Gamma^{\delta\ \epsilon}_{\beta\ \delta}\,n_\epsilon + \frac{1}{15}\eta_{\alpha\beta}\Gamma^{\delta\ \epsilon}_{\chi\ \delta}\,n_\epsilon + \frac{4}{15}\Gamma^{\delta\ \epsilon}_{\ \chi}\,n_\alpha\,n_\beta\,n_\delta\,n_\epsilon + \frac{4}{15}\Gamma^{\delta\epsilon}_{\ \alpha}\,n_\alpha\,n_\beta\,n_\delta\,n_\epsilon + \frac{4}{15}\Gamma^{\ \delta\ \epsilon}_{\beta}\,n_\alpha\,n_\chi\,n_\delta\,n_\epsilon + \frac{4}{15}\Gamma^{\delta\ \epsilon}_{\ \alpha}\,n_\beta\,n_\chi\,n_\delta\,n_\epsilon + \frac{4}{15}\Gamma^{\delta\epsilon}_{\ \beta}\,n_\alpha\,n_\chi\,n_\delta\,n_\epsilon + \frac{4}{15}\Gamma^{\ \delta\ \epsilon}_{\alpha}\,n_\beta\,n_\chi\,n_\delta\,n_\epsilon + \frac{4}{15}\Gamma^{\delta\epsilon}_{\ \alpha}\,n_\beta\,n_\chi\,n_\delta\,n_\epsilon - \frac{1}{5}\eta_{\beta\chi}\Gamma^{\delta\epsilon\phi}\,n_\alpha\,n_\delta\,n_\epsilon\,n_\phi - \frac{1}{5}\eta_{\alpha\chi}\Gamma^{\delta\epsilon\phi}\,n_\beta\,n_\delta\,n_\epsilon\,n_\phi - \frac{1}{5}\eta_{\alpha\beta}\Gamma^{\delta\epsilon\phi}\,n_\chi\,n_\delta\,n_\epsilon\,n_\phi - \frac{2}{5}\Gamma^{\delta\epsilon\phi}\,n_\alpha\,n_\beta\,n_\chi\,n_\delta\,n_\epsilon\,n_\phi$	$\Delta^{\#1}_{3^-\alpha\beta\chi}$