

```
In[ ]:= Get@FileNameJoin@{NotebookDirectory[], "Calibration.m"};
```

```
-----  
Package xAct`xPerm` version 1.2.3, {2015, 8, 23}
```

```
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```

```
Connecting to external linux executable...
```

```
Connection established.  
-----
```

```
Package xAct`xTensor` version 1.2.0, {2021, 10, 17}
```

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-----
```

```
Package xAct`xPlain` version 1.0.0-developer, {2023, 5, 24}
```

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```

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it under certain conditions. See the General Public License for details.  
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```

PSALTer Calibration

Key observation: During the calibration run, we need to write some commentary, which will appear in this green text, or as numbered equations/expressions with a green background. The output of the PSALTer package (specifically the function called ParticleSpectrum) is not in green, thus wherever we are using PSALTer the output should be quite distinctive.

The first step is to load the PSALTer package.

```
-----
Package xAct`SymManipulator` version 0.9.5, {2021, 9, 14}
Copyright (C) 2011–2021, Thomas Bäckdahl, under the General Public License.
```

```
-----
Package xAct`xPert` version 1.0.6, {2018, 2, 28}
Copyright (C) 2005–2020, David Brizuela, Jose M. Martin-Garcia
and Guillermo A. Mena Marugan, under the General Public License.

** Variable $CovDFormat changed from Prefix to Postfix

** Option AllowUpperDerivatives of ContractMetric changed from False to True

** Option MetricOn of MakeRule changed from None to All

** Option ContractMetrics of MakeRule changed from False to True
```

```
-----
Package xAct`Invar` version 2.0.5, {2013, 7, 1}
Copyright (C) 2006–2020, J. M. Martin-Garcia,
D. Yllanes and R. Portugal, under the General Public License.

** DefConstantSymbol: Defining constant symbol sigma.

** DefConstantSymbol: Defining constant symbol dim.

** Option CurvatureRelations of DefCovD changed from True to False

** Variable $CommuteCovDsOnScalars changed from True to False
```

```
-----
Package xAct`xCoba` version 0.8.6, {2021, 2, 28}
Copyright (C) 2005–2021, David Yllanes and Jose M. Martin-Garcia, under the General Public License.
```

```
-----
Package xAct`xTras` version 1.4.2, {2014, 10, 30}
Copyright (C) 2012–2014, Teake Nutma, under the General Public License.

** Variable $CovDFormat changed from Postfix to Prefix

** Option CurvatureRelations of DefCovD changed from False to True
```

```
-----
Package xAct`PSALter` version 1.0.0-developer, {2023, 6, 20}
Copyright © 2022, Will E. V. Barker, Zhiyuan Wei, Stephanie
Buttigieg, Claire Rigouzzo and Cillian Rew, under the General Public License.
```

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```

Great, so PSALter is now loaded and we can start to do some science.

Metric affine gravity (MAG)

Key observation: We will test the MetricAffineGaugeTheory module.

Next we repeat the analysis, but for the kinematically non-restricted metric-affine theory.

Antisymmetric Ricci theory (for Jaakko/Syksy)

Now again we try the antisymmetric Ricci correction.

Here is the nonlinear Lagrangian.

$$\frac{\overset{a}{\underset{0}{\mathcal{F}}}}{2} + \frac{1}{2} \overset{c}{\underset{8}{\mathcal{F}}} \mathcal{F}^{(13)}_{mn} \mathcal{F}^{(13)mn} - \frac{1}{2} \overset{c}{\underset{8}{\mathcal{F}}} \mathcal{F}^{(13)mn} \mathcal{F}^{(13)}_{nm} \quad (1)$$

Here is the linearised Lagrangian.

$$\begin{aligned} & -\frac{1}{2} \overset{a}{\underset{0}{\mathcal{A}}}^{abc} \mathcal{A}_{bc a} + \frac{1}{2} \overset{a}{\underset{0}{\mathcal{A}}}^a{}^b{}_c \mathcal{A}^c{}_{bc} - \frac{1}{4} \overset{a}{\underset{0}{\mathcal{A}}} h^c{}_c \partial_b \mathcal{A}^a{}^b{}_c + \frac{1}{4} \overset{a}{\underset{0}{\mathcal{A}}} h^c{}_c \partial_b \mathcal{A}^{ab}{}_a - \\ & \frac{1}{2} \overset{a}{\underset{0}{\mathcal{A}}} h_{ac} \partial_b \mathcal{A}^{abc} + \frac{1}{2} \overset{a}{\underset{0}{\mathcal{A}}} h_{bc} \partial^c \mathcal{A}^a{}^b{}_c - \frac{1}{2} \overset{c}{\underset{8}{\mathcal{A}}} \partial_b \mathcal{A}^d{}_{dc} \partial^c \mathcal{A}^a{}^b{}_c + \frac{1}{2} \overset{c}{\underset{8}{\mathcal{A}}} \partial_c \mathcal{A}^d{}_{db} \partial^c \mathcal{A}^a{}^b{}_c + \\ & \frac{1}{2} \overset{c}{\underset{8}{\mathcal{A}}} \partial_b \mathcal{A}^{abc} \partial_d \mathcal{A}^d{}_{ca} + \overset{c}{\underset{8}{\mathcal{A}}} \partial^c \mathcal{A}^a{}^b{}_c \partial_d \mathcal{A}^d{}_{ba} - \frac{1}{2} \overset{c}{\underset{8}{\mathcal{A}}} \partial_b \mathcal{A}^{abc} \partial_d \mathcal{A}^d{}_{ca} - \overset{c}{\underset{8}{\mathcal{A}}} \partial^c \mathcal{A}^a{}^b{}_c \partial_d \mathcal{A}^d{}_{cb} \end{aligned} \quad (2)$$

So we now feed this into PSALTer.

The (possibly singular) a -matrices associated

with the Lagrangian, as defined below Eq. (18) of arXiv:1812.02675:

Matrix for spin-0 sector:

$$\begin{pmatrix} 0 & 0 & 0 & 0 & \frac{i \overset{a}{\underset{0}{\mathcal{A}}}, k}{4} & -\frac{i \overset{a}{\underset{0}{\mathcal{A}}}, k}{4 \sqrt{2}} & 0 \\ 0 & 0 & \frac{i \overset{a}{\underset{0}{\mathcal{A}}}, k}{2 \sqrt{2}} & 0 & -\frac{i \overset{a}{\underset{0}{\mathcal{A}}}, k}{4 \sqrt{3}} & \frac{i \overset{a}{\underset{0}{\mathcal{A}}}, k}{4 \sqrt{6}} & 0 \\ 0 & -\frac{i \overset{a}{\underset{0}{\mathcal{A}}}, k}{2 \sqrt{2}} & -\frac{\overset{a}{\underset{0}{\mathcal{A}}}}{2} & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & \frac{\overset{a}{\underset{0}{\mathcal{A}}}}{2} & -\frac{\overset{a}{\underset{0}{\mathcal{A}}}}{2 \sqrt{2}} & 0 \\ -\frac{1}{4} i \overset{a}{\underset{0}{\mathcal{A}}}, k & \frac{i \overset{a}{\underset{0}{\mathcal{A}}}, k}{4 \sqrt{3}} & 0 & \frac{\overset{a}{\underset{0}{\mathcal{A}}}}{2} & 0 & -\frac{\overset{a}{\underset{0}{\mathcal{A}}}}{2 \sqrt{2}} & 0 \\ \frac{i \overset{a}{\underset{0}{\mathcal{A}}}, k}{4 \sqrt{2}} & -\frac{i \overset{a}{\underset{0}{\mathcal{A}}}, k}{4 \sqrt{6}} & 0 & -\frac{\overset{a}{\underset{0}{\mathcal{A}}}}{2 \sqrt{2}} & -\frac{\overset{a}{\underset{0}{\mathcal{A}}}}{2 \sqrt{2}} & \frac{\overset{a}{\underset{0}{\mathcal{A}}}}{2} & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\overset{a}{\underset{0}{\mathcal{A}}}}{2} \end{pmatrix}$$

Matrix for spin-1 sector:

$$\begin{pmatrix} \frac{1}{4} \left(-a_{\bullet 0} + 2 c_{\bullet 8} k^2 \right) - \frac{a_{\bullet 0}}{2 \sqrt{2}} & \frac{c_{\bullet 8} k^2}{2} & 0 & 0 & 0 & 0 & 0 \\ -\frac{a_{\bullet 0}}{2 \sqrt{2}} & 0 & 0 & 0 & 0 & 0 & 0 \\ \frac{c_{\bullet 8} k^2}{2} & 0 & \frac{1}{4} \left(a_{\bullet 0} + 2 c_{\bullet 8} k^2 \right) & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & \frac{i a_{\bullet 0} k}{4 \sqrt{2}} & 0 & -\frac{i a_{\bullet 0} k}{4 \sqrt{6}} & \frac{1}{4} i \sqrt{\frac{5}{6}} a_{\bullet 0} k \\ 0 & 0 & 0 & -\frac{i a_{\bullet 0} k}{4 \sqrt{2}} & \frac{1}{4} \left(-a_{\bullet 0} + 2 c_{\bullet 8} k^2 \right) & \frac{a_{\bullet 0}}{2 \sqrt{2}} & \frac{c_{\bullet 8} k^2}{2 \sqrt{3}} & \frac{1}{2} \sqrt{\frac{5}{3}} c_{\bullet 8} k^2 \\ 0 & 0 & 0 & 0 & \frac{a_{\bullet 0}}{2 \sqrt{2}} & 0 & 0 & 0 \\ 0 & 0 & 0 & \frac{i a_{\bullet 0} k}{4 \sqrt{6}} & \frac{c_{\bullet 8} k^2}{2 \sqrt{3}} & 0 & \frac{1}{6} \left(-2 a_{\bullet 0} + c_{\bullet 8} k^2 \right) & \frac{1}{6} \sqrt{5} \left(a_{\bullet 0} + c_{\bullet 8} k^2 \right) \\ 0 & 0 & 0 & -\frac{1}{4} i \sqrt{\frac{5}{6}} a_{\bullet 0} k & \frac{1}{2} \sqrt{\frac{5}{3}} c_{\bullet 8} k^2 & 0 & \frac{1}{6} \sqrt{5} \left(a_{\bullet 0} + c_{\bullet 8} k^2 \right) & \frac{1}{6} \left(2 a_{\bullet 0} + 5 c_{\bullet 8} k^2 \right) & -\frac{1}{6} \sqrt{\frac{5}{3}} \\ 0 & 0 & 0 & \frac{i a_{\bullet 0} k}{4 \sqrt{3}} & \frac{c_{\bullet 8} k^2}{\sqrt{6}} & 0 & -\frac{a_{\bullet 0} - 2 c_{\bullet 8} k^2}{6 \sqrt{2}} & -\frac{1}{6} \sqrt{\frac{5}{2}} \left(a_{\bullet 0} - 2 c_{\bullet 8} k^2 \right) & \frac{1}{3} \\ 0 & 0 & 0 & \frac{i a_{\bullet 0} k}{4 \sqrt{6}} & -\frac{c_{\bullet 8} k^2}{2 \sqrt{3}} & 0 & \frac{1}{6} \left(-a_{\bullet 0} - c_{\bullet 8} k^2 \right) & -\frac{1}{6} \sqrt{5} \left(a_{\bullet 0} + c_{\bullet 8} k^2 \right) \end{pmatrix}$$

Matrix for spin-2 sector:

$$\begin{pmatrix} 0 & -\frac{i a_{\bullet 0} k}{4 \sqrt{2}} & -\frac{i a_{\bullet 0} k}{4 \sqrt{3}} & \frac{i a_{\bullet 0} k}{4 \sqrt{6}} & 0 & 0 \\ \frac{i a_{\bullet 0} k}{4 \sqrt{2}} & \frac{a_{\bullet 0}}{4} & 0 & 0 & 0 & 0 \\ \frac{i a_{\bullet 0} k}{4 \sqrt{3}} & 0 & -\frac{a_{\bullet 0}}{2} & 0 & 0 & 0 \\ -\frac{i a_{\bullet 0} k}{4 \sqrt{6}} & 0 & 0 & \frac{a_{\bullet 0}}{4} & 0 & 0 \\ 0 & 0 & 0 & 0 & \frac{a_{\bullet 0}}{4} & 0 \\ 0 & 0 & 0 & 0 & 0 & \frac{a_{\bullet 0}}{4} \end{pmatrix}$$

Matrix for spin-3 sector:

$$\begin{pmatrix} \frac{a_{\bullet 0}}{2} \\ -\frac{a_{\bullet 0}}{2} \end{pmatrix}$$

Gauge constraints on source currents:

$$-6 i \mathcal{T}^{\perp} + k \mathcal{Z}^{\parallel} + 2 k \mathcal{Z}^{\perp h} = 0$$

$$2 i \mathcal{T}^{\perp} + k \mathcal{Z}^{\perp t} = 0$$

$$-6 i \mathcal{T}^{\perp a} + k \mathcal{Z}^{\perp h a} = k \left(\mathcal{Z}^{\perp t a} + 3 \mathcal{Y}^{\perp a} \right)$$

The Drazin (Moore-Penrose) inverses of these a -matrices, which are functionally analogous to the inverse b -matrices described below Eq. (21) of arXiv:1812.02675:

Matrix for spin-0 sector:

$$\begin{pmatrix}
 -\frac{36k^2}{a_{\theta} (16+3k^2)^2} & \frac{4\sqrt{3}}{16a_{\theta}+3a_{\theta}k^2} & \frac{2i\sqrt{6}k}{16a_{\theta}+3a_{\theta}k^2} & -\frac{72ik}{a_{\theta} (16+3k^2)^2} & \frac{8ik(19+3k^2)}{a_{\theta} (16+3k^2)^2} & -\frac{4i\sqrt{2}k(10+3k^2)}{a_{\theta} (16+3k^2)^2} & 0 \\
 \frac{4\sqrt{3}}{16a_{\theta}+3a_{\theta}k^2} & \frac{4}{a_{\theta}k^2} & \frac{2i\sqrt{2}}{a_{\theta}k} & \frac{8i\sqrt{3}}{16a_{\theta}k+3a_{\theta}k^3} & -\frac{8i}{\sqrt{3}(16a_{\theta}k+3a_{\theta}k^3)} & -\frac{8i\sqrt{\frac{2}{3}}}{16a_{\theta}k+3a_{\theta}k^3} & 0 \\
 -\frac{2i\sqrt{6}k}{16a_{\theta}+3a_{\theta}k^2} & -\frac{2i\sqrt{2}}{a_{\theta}k} & 0 & \frac{4\sqrt{6}}{16a_{\theta}+3a_{\theta}k^2} & -\frac{4\sqrt{\frac{2}{3}}}{16a_{\theta}+3a_{\theta}k^2} & -\frac{8}{\sqrt{3}(16a_{\theta}+3a_{\theta}k^2)} & 0 \\
 \frac{72ik}{a_{\theta} (16+3k^2)^2} & -\frac{8i\sqrt{3}}{16a_{\theta}k+3a_{\theta}k^3} & \frac{4\sqrt{6}}{16a_{\theta}+3a_{\theta}k^2} & -\frac{144}{a_{\theta} (16+3k^2)^2} & \frac{16(19+3k^2)}{a_{\theta} (16+3k^2)^2} & -\frac{8\sqrt{2}(10+3k^2)}{a_{\theta} (16+3k^2)^2} & 0 \\
 -\frac{8ik(19+3k^2)}{a_{\theta} (16+3k^2)^2} & \frac{8i}{\sqrt{3}(16a_{\theta}k+3a_{\theta}k^3)} & -\frac{4\sqrt{\frac{2}{3}}}{16a_{\theta}+3a_{\theta}k^2} & \frac{16(19+3k^2)}{a_{\theta} (16+3k^2)^2} & -\frac{16(35+6k^2)}{3a_{\theta} (16+3k^2)^2} & -\frac{8\sqrt{2}(22+3k^2)}{3a_{\theta} (16+3k^2)^2} & 0 \\
 \frac{4i\sqrt{2}k(10+3k^2)}{a_{\theta} (16+3k^2)^2} & \frac{8i\sqrt{\frac{2}{3}}}{16a_{\theta}k+3a_{\theta}k^3} & -\frac{8}{\sqrt{3}(16a_{\theta}+3a_{\theta}k^2)} & -\frac{8\sqrt{2}(10+3k^2)}{a_{\theta} (16+3k^2)^2} & -\frac{8\sqrt{2}(22+3k^2)}{3a_{\theta} (16+3k^2)^2} & \frac{32(13+3k^2)}{3a_{\theta} (16+3k^2)^2} & 0 \\
 0 & 0 & 0 & 0 & 0 & 0 & -\frac{2}{a_{\theta}}
 \end{pmatrix}$$

Matrix for spin-1 sector:

$$\begin{pmatrix}
 0 & -\frac{2\sqrt{2}}{a_{\theta}} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\
 -\frac{2\sqrt{2}}{a_{\theta}} & \frac{2}{a_{\theta}+2c_{\theta}k^2} & \frac{4\sqrt{2}c_{\theta}k^2}{a_{\theta}^2+2a_{\theta}c_{\theta}k^2} & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\
 0 & \frac{4\sqrt{2}c_{\theta}k^2}{a_{\theta}^2+2a_{\theta}c_{\theta}k^2} & \frac{4}{a_{\theta}+2c_{\theta}k^2} & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\
 0 & 0 & 0 & \frac{2k^2}{a_{\theta}(2+k^2)^2} & \frac{2i\sqrt{2}k}{2a_{\theta}+a_{\theta}k^2} & \frac{ik(4+k^2)}{a_{\theta}(2+k^2)^2} & -\frac{i\sqrt{\frac{2}{3}}k(4+3k^2)}{a_{\theta}(2+k^2)^2} & 0 & -\frac{ik(8+3k^2)}{\sqrt{3}a_{\theta}(2+k^2)^2} \\
 0 & 0 & 0 & -\frac{2i\sqrt{2}k}{2a_{\theta}+a_{\theta}k^2} & 0 & \frac{\sqrt{2}(4+k^2)}{a_{\theta}(2+k^2)} & -\frac{2k^2}{\sqrt{3}(2a_{\theta}+a_{\theta}k^2)} & 0 & \frac{\sqrt{\frac{2}{3}}k^2}{2a_{\theta}+a_{\theta}k^2} \\
 0 & 0 & 0 & -\frac{ik(4+k^2)}{a_{\theta}(2+k^2)^2} & \frac{\sqrt{2}(4+k^2)}{a_{\theta}(2+k^2)} & \frac{(4+k^2)^2}{2a_{\theta}(2+k^2)^2} & -\frac{8+8k^2+k^4}{\sqrt{6}a_{\theta}(2+k^2)^2} & -\frac{\sqrt{\frac{10}{3}}}{a_{\theta}} & \frac{-16-4k^2+k^4}{2\sqrt{3}a_{\theta}(2+k^2)^2} \\
 0 & 0 & 0 & \frac{i\sqrt{\frac{2}{3}}k(4+3k^2)}{a_{\theta}(2+k^2)^2} & -\frac{2k^2}{\sqrt{3}(2a_{\theta}+a_{\theta}k^2)} & -\frac{8+8k^2+k^4}{\sqrt{6}a_{\theta}(2+k^2)^2} & \frac{1}{6}\left(\frac{1}{c_{\theta}k^2} + \frac{2(-16-8k^2+k^4)}{a_{\theta}(2+k^2)^2}\right) & \frac{\sqrt{5}(a_{\theta}+4c_{\theta}k^2)}{6a_{\theta}c_{\theta}k^2} & \frac{\frac{1}{c_{\theta}k^2} + \frac{-1-\frac{4}{(2+k^2)^2}}{a_{\theta}}}{3\sqrt{2}} \\
 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{\frac{10}{3}}}{a_{\theta}} & \frac{\sqrt{5}(a_{\theta}+4c_{\theta}k^2)}{6a_{\theta}c_{\theta}k^2} & \frac{4}{3a_{\theta}} + \frac{5}{6c_{\theta}k^2} & \frac{\sqrt{\frac{5}{2}}(a_{\theta}-2c_{\theta}k^2)}{3a_{\theta}c_{\theta}k^2} \\
 0 & 0 & 0 & \frac{ik(8+3k^2)}{\sqrt{3}a_{\theta}(2+k^2)^2} & \frac{\sqrt{\frac{2}{3}}k^2}{2a_{\theta}+a_{\theta}k^2} & \frac{-16-4k^2+k^4}{2\sqrt{3}a_{\theta}(2+k^2)^2} & \frac{\frac{1}{c_{\theta}k^2} + \frac{-1-\frac{4}{(2+k^2)^2}}{a_{\theta}}}{3\sqrt{2}} & \frac{\sqrt{\frac{5}{2}}(a_{\theta}-2c_{\theta}k^2)}{3a_{\theta}c_{\theta}k^2} & \frac{1}{6}\left(\frac{2}{c_{\theta}k^2} + \frac{32+16k^2+k^4}{a_{\theta}(2+k^2)^2}\right) \\
 0 & 0 & 0 & 0 & 0 & -\frac{2\sqrt{\frac{2}{3}}}{a_{\theta}} & \frac{1}{3}\left(\frac{4}{a_{\theta}} + \frac{1}{c_{\theta}k^2}\right) & \frac{\sqrt{5}(a_{\theta}+4c_{\theta}k^2)}{3a_{\theta}c_{\theta}k^2} & \frac{\sqrt{2}(a_{\theta}-2c_{\theta}k^2)}{3a_{\theta}c_{\theta}k^2}
 \end{pmatrix}$$

Matrix for spin-2 sector:

$$\begin{pmatrix}
 -\frac{8}{a_{\theta}k^2} & -\frac{4i\sqrt{2}}{a_{\theta}k} & \frac{4i}{\sqrt{3}a_{\theta}k} & \frac{4i\sqrt{\frac{2}{3}}}{a_{\theta}k} & 0 & 0 \\
 \frac{4i\sqrt{2}}{a_{\theta}k} & 0 & \frac{2\sqrt{\frac{2}{3}}}{a_{\theta}} & \frac{4}{\sqrt{3}a_{\theta}} & 0 & 0 \\
 -\frac{4i}{\sqrt{3}a_{\theta}k} & \frac{2\sqrt{\frac{2}{3}}}{a_{\theta}} & -\frac{8}{3a_{\theta}} & -\frac{2\sqrt{2}}{3a_{\theta}} & 0 & 0 \\
 -\frac{4i\sqrt{\frac{2}{3}}}{a_{\theta}k} & \frac{4}{\sqrt{3}a_{\theta}} & -\frac{2\sqrt{2}}{3a_{\theta}} & \frac{8}{3a_{\theta}} & 0 & 0 \\
 0 & 0 & 0 & 0 & \frac{4}{a_{\theta}} & 0 \\
 0 & 0 & 0 & 0 & 0 & \frac{4}{a_{\theta}}
 \end{pmatrix}$$

Matrix for spin-3 sector:

$$\left(-\frac{2}{a_{\bullet 0}}\right)$$

Square masses:

$$\left\{\emptyset, \emptyset, \left\{-\frac{a_{\bullet 0}}{2c_{\bullet 8}}\right\}, \emptyset, \emptyset, \emptyset, \emptyset, \emptyset\right\}$$

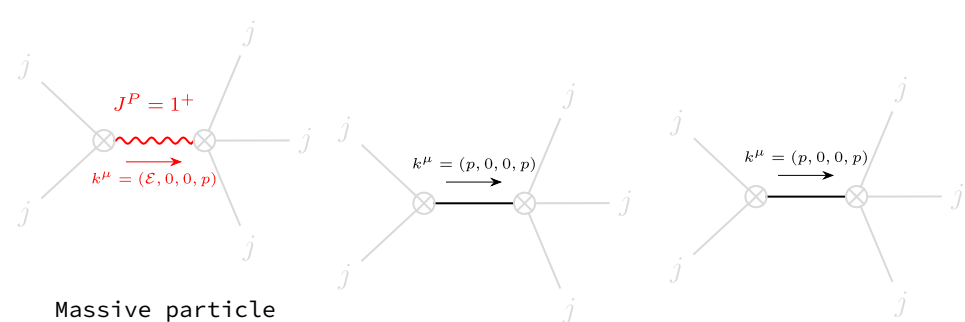
Massive pole residues:

$$\left\{\emptyset, \emptyset, \left\{\frac{3}{c_{\bullet 8}}\right\}, \emptyset, \emptyset, \emptyset, \emptyset, \emptyset\right\}$$

Massless eigenvalues:

$$\left\{-\frac{28p^2}{a_{\bullet 0}}, -\frac{20p^2}{a_{\bullet 0}}, -\frac{2\left(a_{\bullet 0}^2+32c_{\bullet 8}^2p^4\right)}{a_{\bullet 0}^2c_{\bullet 8}}, -\frac{2\left(a_{\bullet 0}^2+32c_{\bullet 8}^2p^4\right)}{a_{\bullet 0}^2c_{\bullet 8}}\right\}$$

Overall particle spectrum:



Massive particle

Pole residue:	$\frac{3}{c_{\bullet 8}} > 0$
Square mass:	$-\frac{a_{\bullet 0}}{2c_{\bullet 8}} > 0$
Spin:	1
Parity:	Even

Massless particle

Pole residue:	$-\frac{p^2}{a_{\bullet 0}} > 0$
Polarisations:	2

Massless particle

Pole residue:	$-\frac{1}{c_{\bullet 8}} - \frac{32c_{\bullet 8}p^4}{a_{\bullet 0}^2} > 0$
Polarisations:	2

Overall unitarity conditions:

False

These look like interesting results, would be keen to compare with the details of your spectrum.

Key observation: We have now reached the end of the PSALTer calibration script.