In[256]:= **Mneut[[Range[1, 7], 1]] /. {σn[3] → 0, σv[i_] → 0} // Simplify // MatrixForm**

Out[256]//MatrixForm=

$$\begin{pmatrix} \frac{1}{4}\left(4\,\text{mH1}^2+3\,\text{g2}^2\,\text{v1}^2-\text{g2}^2\,\text{v2}^2+\text{g1}^2\left(3\,\text{v1}^2-\text{v2}^2\right)+4\,\text{v2}^2\,\kappa 0^2+4\,\kappa 0^2\,\sigma\text{S}^2\right) \\ \frac{1}{2}\left(-\text{g1}^2\,\text{v1}\,\text{v2}-\text{g2}^2\,\text{v1}\,\text{v2}+4\,\text{v1}\,\text{v2}\,\kappa 0^2-2\,\text{A0}\,\sigma\text{S}-\kappa 0\,\kappa 3\,\sigma\text{S}^2\right) \\ -\text{A0}\,\text{v2}+\kappa 0\,(2\,\text{v1}\,\kappa 0-\text{v2}\,\kappa 3)\,\sigma\text{S} \\ 0 \\ 0 \\ 0 \\ 0 \end{pmatrix}$$

In[257]:= **Mneut[[Range[1, 7], 2]] /. {σn[3] → 0, σv[i_] → 0} // Simplify // MatrixForm**

Out[257]//MatrixForm=

$$\begin{pmatrix} \frac{1}{2}\left(-\text{g1}^2\,\text{v1}\,\text{v2}-\text{g2}^2\,\text{v1}\,\text{v2}+4\,\text{v1}\,\text{v2}\,\kappa 0^2-2\,\text{A0}\,\sigma\text{S}-\kappa 0\,\kappa 3\,\sigma\text{S}^2\right) \\ \frac{1}{4}\left(4\,\text{mH2}^2-\text{g2}^2\,\text{v1}^2+3\,\text{g2}^2\,\text{v2}^2-\text{g1}^2\left(\text{v1}^2-3\,\text{v2}^2\right)+4\,\text{v1}^2\,\kappa 0^2+4\,\kappa 0^2\,\sigma\text{S}^2\right) \\ -\text{A0}\,\text{v1}+\kappa 0\,(2\,\text{v2}\,\kappa 0-\text{v1}\,\kappa 3)\,\sigma\text{S} \\ 0 \\ 0 \\ 0 \\ 0 \end{pmatrix}$$

In[258]:= **Mneut[[Range[1, 7], 3]] /. {σn[3] → 0, σv[i_] → 0} // Simplify // MatrixForm**

Out[258]//MatrixForm=

$$\begin{pmatrix} -\text{A0}\,\text{v2}+\kappa 0\,(2\,\text{v1}\,\kappa 0-\text{v2}\,\kappa 3)\,\sigma\text{S} \\ -\text{A0}\,\text{v1}+\kappa 0\,(2\,\text{v2}\,\kappa 0-\text{v1}\,\kappa 3)\,\sigma\text{S} \\ \text{MS}^2+\text{v1}^2\,\kappa 0^2+\text{v2}^2\,\kappa 0^2-\text{v1}\,\text{v2}\,\kappa 0\,\kappa 3+\text{A3}\,\sigma\text{S}+\frac{3\,\kappa 3^2\,\sigma\text{S}^2}{2} \\ 0 \\ 0 \\ 0 \\ 0 \end{pmatrix}$$

In[259]:=
```
Mneut[[Range[1, 7], 4]] /. {σn[3] → 0, σv[i_] → 0} // Simplify // MatrixForm
```

Out[259]//MatrixForm=

$$\begin{pmatrix} 0 \\ 0 \\ 0 \\ \frac{1}{4}\left(g1^2\left(v1^2-v2^2\right)+g2^2\left(v1^2-v2^2\right)+4\left(ML[1,1]^2+v2^2\,\kappa1[1]^2\right)\right) \\ ML[1,2]^2+v2^2\,\kappa1[1]\,\kappa1[2] \\ ML[1,3]^2+v2^2\,\kappa1[1]\,\kappa1[3] \\ -v1\,\kappa0\,\sigma S\,\kappa1[1]+v2\,(A1[1]+\kappa2\,\sigma S\,\kappa1[1]) \end{pmatrix}$$

In[260]:=
```
Mneut[[Range[1, 7], 5]] /. {σn[3] → 0, σv[i_] → 0} // Simplify // MatrixForm
```

Out[260]//MatrixForm=

$$\begin{pmatrix} 0 \\ 0 \\ 0 \\ ML[1,2]^2+v2^2\,\kappa1[1]\,\kappa1[2] \\ \frac{1}{4}\left(g1^2\left(v1^2-v2^2\right)+g2^2\left(v1^2-v2^2\right)+4\left(ML[2,2]^2+v2^2\,\kappa1[2]^2\right)\right) \\ ML[2,3]^2+v2^2\,\kappa1[2]\,\kappa1[3] \\ -v1\,\kappa0\,\sigma S\,\kappa1[2]+v2\,(A1[2]+\kappa2\,\sigma S\,\kappa1[2]) \end{pmatrix}$$

In[261]:=
```
Mneut[[Range[1, 7], 6]] /. {σn[3] → 0, σv[i_] → 0} // Simplify // MatrixForm
```

Out[261]//MatrixForm=

$$\begin{pmatrix} 0 \\ 0 \\ 0 \\ ML[1,3]^2+v2^2\,\kappa1[1]\,\kappa1[3] \\ ML[2,3]^2+v2^2\,\kappa1[2]\,\kappa1[3] \\ \frac{1}{4}\left(g1^2\left(v1^2-v2^2\right)+g2^2\left(v1^2-v2^2\right)+4\left(ML[3,3]^2+v2^2\,\kappa1[3]^2\right)\right) \\ -v1\,\kappa0\,\sigma S\,\kappa1[3]+v2\,(A1[3]+\kappa2\,\sigma S\,\kappa1[3]) \end{pmatrix}$$

In[262]:=
```
Mneut[[Range[1, 7], 7]] /. {σn[3] → 0, σv[i_] → 0} // Simplify // MatrixForm
```

Out[262]//MatrixForm=

$$\begin{pmatrix} 0 \\ 0 \\ 0 \\ -\text{v1}\,\kappa 0\,\sigma\text{S}\,\kappa 1[1] + \text{v2}\,(\text{A1}[1] + \kappa 2\,\sigma\text{S}\,\kappa 1[1]) \\ -\text{v1}\,\kappa 0\,\sigma\text{S}\,\kappa 1[2] + \text{v2}\,(\text{A1}[2] + \kappa 2\,\sigma\text{S}\,\kappa 1[2]) \\ -\text{v1}\,\kappa 0\,\sigma\text{S}\,\kappa 1[3] + \text{v2}\,(\text{A1}[3] + \kappa 2\,\sigma\text{S}\,\kappa 1[3]) \\ -\text{v1}\,\text{v2}\,\kappa 0\,\kappa 2 + \text{A2}\,\sigma\text{S} + \kappa 2^2\,\sigma\text{S}^2 + \frac{1}{2}\,\kappa 2\,\kappa 3\,\sigma\text{S}^2 + \text{MN}[3, 3]^2 + \text{v2}^2\,\kappa 1[1]^2 + \text{v2}^2\,\kappa 1[2]^2 + \text{v2}^2\,\kappa 1[3]^2 \end{pmatrix}$$