

```
In[1]:= SetDirectory["~/KappaLib/"];
<< kappaLib-1.1.m
<< helper.m

KappaLib v1.1

Loading helper.m..
```

```
In[4]:= kappa = emMatrixToKappa  $\left[ \begin{array}{cccccc} a1 & 0 & 0 & -b1 & 0 & 0 \\ 0 & a2 & 0 & 0 & -b2 & 0 \\ 0 & 0 & a3 & 0 & 0 & -b3 \\ b1 & 0 & 0 & a1 & 0 & 0 \\ 0 & b2 & 0 & 0 & a2 & 0 \\ 0 & 0 & b3 & 0 & 0 & a3 \end{array} \right];$ 
```

```
In[5]:= kappa = kappa /. {b3 → b1, b2 → b1, a3 → a1, a2 → a1};
```

```
In[6]:= kappa2 = a1 emIdentityKappa[] - b1 emHodge[DiagonalMatrix[-1, 1, 1, 1]];
```

```
In[7]:= Union[Flatten[kappa - kappa2]]
```

```
Out[7]= {0}
```

```
In[8]:= {AA, BB, CC, DD} = emKappaToABCD[kappa];
```

```
In[9]:= AA // MatrixForm
BB // MatrixForm
CC // MatrixForm
DD // MatrixForm
```

```
Out[9]/MatrixForm=
```

$$\begin{pmatrix} b1 & 0 & 0 \\ 0 & b1 & 0 \\ 0 & 0 & b1 \end{pmatrix}$$

```
Out[10]/MatrixForm=
```

$$\begin{pmatrix} -b1 & 0 & 0 \\ 0 & -b1 & 0 \\ 0 & 0 & -b1 \end{pmatrix}$$

```
Out[11]/MatrixForm=
```

$$\begin{pmatrix} a1 & 0 & 0 \\ 0 & a1 & 0 \\ 0 & 0 & a1 \end{pmatrix}$$

```
Out[12]/MatrixForm=
```

$$\begin{pmatrix} a1 & 0 & 0 \\ 0 & a1 & 0 \\ 0 & 0 & a1 \end{pmatrix}$$