Initialization & Library Loading

Creating 4-Vectors

In[ ]:=
```
mkFourVector[t, x, y, z]
```

Out[ ]=
```
FourVector[t, x, y, z]
```

In[ ]:=
```
mkFourVector[t / 2, x^2, y]
```

Out[ ]= $\text{FourVector}\left[\frac{t}{2}, x^2, y, 0\right]$

Dot-product

In[ ]:=
```
mkFourVector[t, x, y, z].mkFourVector[t1, x1, y1, z1]
```

Out[ ]= $t\,t1 - x\,x1 - y\,y1 - z\,z1$

In[ ]:=
```
mkFourVector[t, x, y, z].mkFourVector[t, x, y, z]
```

Out[ ]= $t^2 - x^2 - y^2 - z^2$

In[ ]:=
```
mkFourVector[t, x].mkFourVector[t, 0, 0, z]
```

Out[ ]= t^2

Norm

In[ ]:=
```
Norm[mkFourVector[t, x, y, z]]
```

Out[ ]= $\sqrt{t^2 - x^2 - y^2 - z^2}$

Type Query

In[ ]:=
```
FourVectorQ[mkFourVector[t, x, y, z]]
```

Out[ ]=
```
True
```

In[ ]:=
```
FourVectorQ[Norm[mkFourVector[t, x, y, z]]]
```

Out[ ]=
```
False
```