In[14]:=
```
Clear["Global`*"]

SetDirectory["/Users/kevin/papers/math/GRcode"]
```

Out[15]=
```
/Users/kevin/papers/math/GRcode
```

In[16]:=
```
<< GREAT.m
```

```
GREAT functions are: IMetric, Christoffel,
  Riemann, Ricci, SCurvature, EinsteinTensor, SqRicci, SqRiemann.

Enter 'helpGREAT' for this list of functions
```

In[17]:=
```
x = {t, r, theta, phi}
```

Out[17]=
```
{t, r, theta, phi}
```

In[18]:=
```
rhosq = r^2 + a^2 * Cos[theta]^2
```

Out[18]=
$$r^2 + a^2 \text{Cos}[\text{theta}]^2$$

In[19]:=
```
Delta = r^2 - 2 M * r + a^2
```

Out[19]=
$$a^2 - 2\,M\,r + r^2$$

In[20]:=
```
(g = {{(a^2 * Sin[theta]^2 - Delta) / rhosq,
     0, 0, a * Sin[theta]^2 (Delta - r^2 - a^2) / rhosq},
    {0, rhosq / Delta, 0, 0},
    {0, 0, rhosq, 0},
    {a * Sin[theta]^2 (Delta - r^2 - a^2) / rhosq, 0, 0, Sin[theta]^2 *
      ((r^2 + a^2)^2 - a^2 * Sin[theta]^2 * Delta) / rhosq}}) // MatrixForm
```

Out[20]//MatrixForm=

$$\begin{pmatrix} \frac{-a^2+2\,M\,r-r^2+a^2\,\text{Sin}[\text{theta}]^2}{r^2+a^2\,\text{Cos}[\text{theta}]^2} & 0 & 0 & -\frac{2\,a\,M\,r\,\text{Sin}[\text{theta}]^2}{r^2+a^2\,\text{Cos}[\text{theta}]^2} \\ 0 & \frac{r^2+a^2\,\text{Cos}[\text{theta}]^2}{a^2-2\,M\,r+r^2} & 0 & 0 \\ 0 & 0 & r^2 + a^2\,\text{Cos}[\text{theta}]^2 & 0 \\ -\frac{2\,a\,M\,r\,\text{Sin}[\text{theta}]^2}{r^2+a^2\,\text{Cos}[\text{theta}]^2} & 0 & 0 & \frac{\text{Sin}[\text{theta}]^2\left(\left(a^2+r^2\right)^2-a^2\left(a^2-2\,M\,r+r^2\right)\text{Sin}[\text{theta}\right.}{r^2+a^2\,\text{Cos}[\text{theta}]^2} \end{pmatrix}$$

In[21]:=
```
Ricci[g, x]
```

Out[21]=
```
{{0, 0, 0, 0}, {0, 0, 0, 0}, {0, 0, 0, 0}, {0, 0, 0, 0}}
```

In[22]:=
```
SCurvature[g, x]
```

Out[22]=
```
0
```