Los valores de las constantes son:

```
In[130]:= ρ = -0.01
          S0 = 1284.5
          σ = 15.82326670549172
          r = 0.08
          t0 = 1
Out[130]= -0.01
Out[131]= 1284.5
Out[132]= 15.8233
Out[133]= 0.08
Out[134]= 1
```

Como podemos observar coinside con el u0 de ADM.

```
In[135]:= u0[x_, t_] := 0.0002012763231477313 + -0.04328399294027511 * x +
            2.4473976418324934 * x * x + 1267.7881151576387 x * x * x

In[136]:= u0[x, t]
```

Out[136]= $0.000201276 - 0.043284\, x + 2.4474\, x^{2} + 1267.79\, x^{3}$

```
In[137]:= u0[S0, 1]
```

Out[137]= 2.68689×10^{12}

```
In[138]:= A0[S_, t_] := (D[D[u0[S, t], S], S])^2

In[139]:=  A0[S, t]
```

Out[139]= $(4.8948 + 7606.73\, S)^{2}$

```
In[142]:= a0[S_, t_] := {(4.894795283664987` + 7606.728690945833` S)^2}

In[143]:= a0[S0, t0]
```

Out[143]= $\{9.54695 \times 10^{13}\}$

```
In[144]:= u1[S_, t_] :=
           -Integrate[-1 / 2 * σ^2 * S^2 * D[D[u0[S, t], S], S] + r * S * D[u0[S, t], S] - r, t] -
            ρ * σ^2 * (Integrate[-S^3 * A0[S, t], t])

In[145]:= u1[S, t]
```

Out[145]= $-2.50376\, S^{3}\, (4.8948 + 7606.73\, S)^{2}\, t - \left(-0.08 - 125.188\, S^{2}\, (4.8948 + 7606.73\, S) + 0.08\, S \left(-0.043284 + 4.8948\, S + 3803.36\, S^{2}\right)\right) t$

In[146]:=
```
U1[S_, t_] := {-2.503757692331228` S^3 (4.894795283664987` + 7606.728690945833` S)^2 t -
    (-0.08` - 125.1878846165614` S^2 (4.894795283664987` + 7606.728690945833` S) + 0.08`
        S (-0.04328399294027511` + 4.894795283664987` S + 3803.3643454729163` S^2)) t}
```

In[147]:=
```
U1[S0, t0]
```

Out[147]= $\{-5.06593\times10^{23}\}$

In[148]:=
```
A1[S, t] := 2 * (D[D[u0[S, t], S], S]) * (D[D[u1[S, t], S], S])
```

In[149]:=
```
A1[S, t]
```

Out[149]= $2\,(4.8948+7606.73\,S)\,\left(-2.89746\times10^{8}\,S^{3}\,t-228\,545.\,S^{2}\,(4.8948+7606.73\,S)\,t-15.0225\,S\,(4.8948+7606.73\,S)^{2}\,t-\left(-3.80847\times10^{6}\,S-250.216\,(4.8948+7606.73\,S)\right)\,t\right)$

In[150]:=
```
a1[S_, t_] :=
  {2 (4.894795283664987` + 7606.728690945833` S) (-2.8974646449090827`*^8 S^3 t -
      228544.86568118737` S^2 (4.894795283664987` + 7606.728690945833` S) t -
      15.022546153987369` S (4.894795283664987` + 7606.728690945833` S)^2 t -
      (-3.8084725563911805`*^6 S -
         250.21576923312278` (4.894795283664987` + 7606.728690945833` S)) t)}
```

In[151]:=
```
a1[S0, t0]
```

Out[151]= $\{-1.2\times10^{26}\}$

In[152]:=
```
u2[S_, t_] :=
  -Integrate[-1 / 2 * σ^2 * S^2 * D[D[u1[S, t], S], S] + r * S * D[u1[S, t], S] - r, t] -
   ρ * σ^2 * (Integrate[-S^3 * A1[S, t], t])
```

In[153]:=
```
u2[S, t]
```

Out[153]= $0.08\,t-0.000138509\,S\,t^{2}+76\,613.3\,S^{2}\,t^{2}+3.57387\times10^{8}\,S^{3}\,t^{2}-1.40015\times10^{8}\,S^{4}\,t^{2}-1.81335\times10^{11}\,S^{5}\,t^{2}+1.25188\,S^{3}\left(-11\,989.8-7.45454\times10^{7}\,S-8.68688\times10^{10}\,S^{2}+6.2403\times10^{10}\,S^{3}+4.40805\times10^{13}\,S^{4}\right)\,t^{2}$

In[154]:=
```
U2[S_, t_] := {0.08` t - 0.00013850877740888035` S t^2 + 76613.25155631184` S^2 t^2 +
    3.5738707312189406`*^8 S^3 t^2 - 1.400153926797592`*^8 S^4 t^2 -
    1.8133476017727307`*^11 S^5 t^2 + 1.251878846165614` S^3
     (-11989.84967361305` - 7.454537848244998`*^7 S - 8.686878687697942`*^10 S^2 +
        6.240298362534291`*^10 S^3 + 4.40804548908622`*^13 S^4) t^2}
```

In[155]:=
```
U2[S0, t0]
```

Out[155]= $\{3.18381\times10^{35}\}$

In[156]:=
```
u[S_, t_] := u0[S, t] + u1[S, t] + u2[S, t]
```

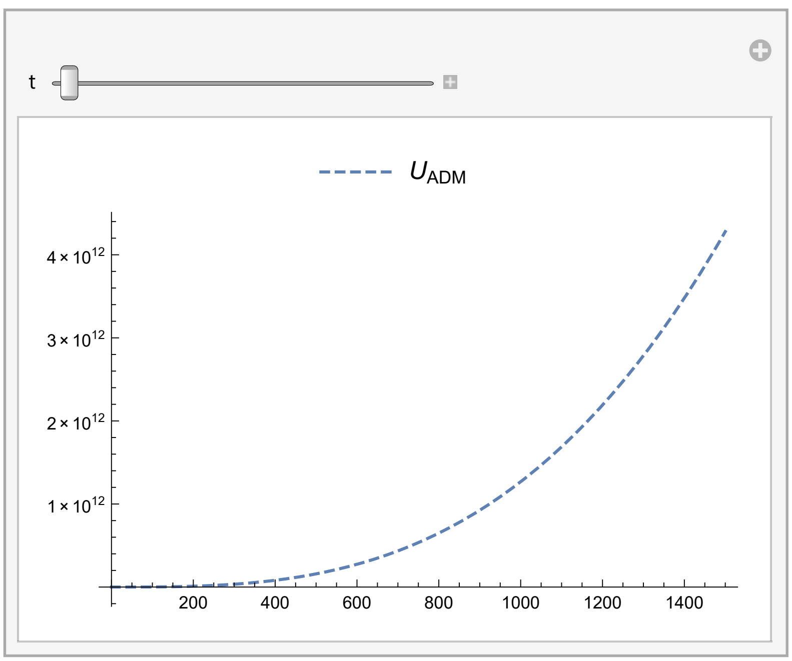
In[163]:=
```
u[S, t]
```

Out[163]=
$$0.000201276 - 0.043284\, S + 2.4474\, S^2 + 1267.79\, S^3 + 0.08\, t - 2.50376\, S^3\, (4.8948 + 7606.73\, S)^2\, t - \left(-0.08 - 125.188\, S^2\, (4.8948 + 7606.73\, S) + 0.08\, S\left(-0.043284 + 4.8948\, S + 3803.36\, S^2\right)\right) t - 0.000138509\, S\, t^2 + 76\,613.3\, S^2\, t^2 + 3.57387\times 10^8\, S^3\, t^2 - 1.40015\times 10^8\, S^4\, t^2 - 1.81335\times 10^{11}\, S^5\, t^2 + 1.25188\, S^3 \left(-11\,989.8 - 7.45454\times 10^7\, S - 8.68688\times 10^{10}\, S^2 + 6.2403\times 10^{10}\, S^3 + 4.40805\times 10^{13}\, S^4\right) t^2$$

In[158]:=
```
U[S_, t_] := {0.0002012763231477313` - 0.04328399294027511` S +
    2.4473976418324934` S^2 + 1267.7881151576387` S^3 + 0.08` t -
    2.503757692331228` S^3 (4.894795283664987` + 7606.728690945833` S)^2 t -
    (-0.08` - 125.1878846165614` S^2 (4.894795283664987` + 7606.728690945833` S) + 0.08`
        S (-0.04328399294027511` + 4.894795283664987` S + 3803.3643454729163` S^2)) t -
    0.00013850877740888035` S t^2 + 76613.25155631184` S^2 t^2 +
    3.5738707312189406`*^8 S^3 t^2 - 1.400153926797592`*^8 S^4 t^2 -
    1.8133476017727307`*^11 S^5 t^2 + 1.251878846165614` S^3
     (-11989.84967361305` - 7.454537848244998`*^7 S - 8.686878687697942`*^10 S^2 +
       6.240298362534291`*^10 S^3 + 4.40804548908622`*^13 S^4) t^2}
```

In[161]:=
```
Manipulate[Plot[{U[S, t]}, {S, 0, 1500}, PlotLegends → Placed[{"U_ADM"}, Above],
  PlotStyle → {Triangle, Dashed}, AxesOrigin → {0, 0}], {t, 0, 10}]
```

Out[161]=



In[162]:=
```
U[S0, t0]
```

Out[162]= $\{3.18381\times 10^{35}\}$