In[244]:=
```
(* Notebook to calculate Makino+1998 gas profile*)
omegam = 0.32
omegal = 0.68
hconst = 0.67
omegabhh = 0.022
fgas = 1.0
b = 0.7
rvir = 106 (*This is in kpc *)
tvir = 3.06 * 10^6 (* in K *)
mass = 1.0 * 10^12
conc = 3.75
zform = 2.0
deltac = 3000.0 * omegam * (1 + zform)^3
rho0c = 9.47 * 10^-30 (*This is in g/cm^3*)
```

Out[244]= 0.32

Out[245]= 0.68

Out[246]= 0.67

Out[247]= 0.022

Out[248]= 1.

Out[249]= 0.7

Out[250]= 106

Out[251]= 3.06×10^{6}

Out[252]= $1. \times 10^{12}$

Out[253]= 3.75

Out[254]= 2.

Out[255]= 25 920.

Out[256]= 9.47×10^{-30}

In[257]:=
```
omegab = omegabhh / (hconst^2)
rho0gas = fgas * omegab * rho0c * deltac / omegam *
   (e^(27 b/2.0) * (Log[(1 + conc)] - conc / (1 + conc))) * 1.0 / N[∫_0^conc x^2 (1 + x)^(27 b/(2*x)) dx]
rs = rvir / conc
```

Out[257]= 0.0490087

Out[258]= 1.51749×10^{-25}

Out[259]= 28.2667

In[260]:=
```
rho[r_] = rho0gas * e^(-27 b/2.0) (1 + r / rs)^(27 b/(2.0*r/rs))
```

Out[260]= $1.1941 \times 10^{-29} \ (1 + 0.0353774\ r)^{267.12/r}$

In[261]:=
```
N[rho[0.3]]
N[rho[106.0]]
Plot[rho[r], {r, 0.1, 106}, PlotRange → All]
```

Out[261]= 1.44377×10^{-25}

Out[262]= 6.05773×10^{-28}

Out[263]=