```
funcprot(0);
// ------------------------------------------------------------------
// 1*G*M/c^2 in m; Sun
GM=1.48E03;
// 2*G*M/c^2 in m; Sun
GM2=2*GM;
// 4*G*M/c^2 in m; Sun
GM4=4*GM;

cs2=1/GM2;
cs4=1/GM4;

function [PHIv]=fPHI(rv)
    Nb=size(rv,"c");
    PHIv=zeros(rv);

    for Ix=1:Nb
        PHIv(Ix)=-GM/rv(Ix);
    end
endfunction

function rStarv=frStar(rv)
    rStarv=rv+GM2*log(abs(cs2*rv-1));
endfunction

function [uv, vv]=fuv(tv, rStarv)
    uv=tv-rStarv;
    vv=tv+rStarv;
endfunction

function [signv]=fsign(rv)
    signv=ones(rv);

    Ixe=find((1+2*fPHI(rv)) < 0);
    signv(Ixe)=-1;
endfunction

function [Uv, Vv]=fUV(rv, uv, vv)
    Uv=-fsign(rv) .* exp(-cs4*uv);
    Vv=exp(+cs4*vv);
endfunction

// Kruskal coordinates

function [Tv, Rv]=fTR(Uv, Vv)
    Tv=0.5*(Uv+Vv);
    Rv=0.5*(Uv-Vv);
endfunction

// ------------------------------------------------------------------

function [Uv, Vv]=frt2UV(tv, rv)
    rStarv=frStar(rv);
    [uv,vv]=fuv(tv,rStarv);
    [Uv,Vv]=fUV(rv,uv,vv);
```

```
endfunction

// ----------------------------------------------------------------

function [Tv, Rv]=frt2TR(tv, rv)
    [Uv,Vv]=frt2UV(tv,rv)
    [Tv,Rv]=fTR(Uv,Vv);
endfunction

// ----------------------------------------------------------------

f=scf(100001);
clf(f,"reset");

eps=0.001
Nb=6000;

tv=linspace(1,600,Nb);

rv=linspace(eps,GM2-eps,Nb);
//rv=linspace(GM2+eps,10*GM2,Nb);

//tv=ones(rv);
//tv=tv*1;

//rv=ones(tv);
//rv=rv*(GM-eps);

[Tv,Rv]=frt2TR(tv,rv);

disp(min(Tv));
disp(max(Tv));
disp(min(Rv));
disp(max(Rv));

subplot(211);
plot(tv,rv);
subplot(212);
plot(Tv,Rv);
```