Subject: help on optimization
Posted by stefania on Thu, 23 Jun 2011 09:38:00 GMT
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Hi all,
I am writing a piece of code that is supposed to provide stacked differential surface mass density profiles (Sigma(<r)-Sigma(r)). What I have now it works but is way too slow since I will have to use it to repeat the stacking ~10^5 times...
What I think can be optimized is the part of code which is doing the following:
-select particles within a distance
-do the profile by histogramming the particles in radial bins
-sum the mass of the particles in each bin (each particle has a different mass)

```
for i=0,nhalos do begin
   ;Pre-select only particles at a reasonable distance
   jj=where((xrand[i]-file_gaspos(0,*))^2 lt 100. and  (yrand[i]-
file_gaspos(1,*))^2 lt 100. )
   ;Distance of particles to the halo
    dis=(xrand[i]-file_gaspos(0,jj))*(xrand[i]-file_gaspos(0,jj) )+
(yrand[i]-file_gaspos(1,jj))*(yrand[i]-file_gaspos(1,jj))
   dis=sqrt(dis)
   ;histogram distances within 10Mpc
   ind_gas=where(dis lt 10.)
   gasmass=file_gasmass[jj[ind_gas]]
   hist = histogram(dis[ind_gas],
binsize=bin_mpc,locations=xhist,reverse_indices=ri)

   for ll=0,n_elements(xhist)-1 do begin
      gasm[ll]=total(file_gasmass[jj[ind_gas[ ri[ ri[ll]:ri[ll
+1]-1 ] ]]])
      gasm_cum[ll]=total(file_gasmass[jj[ind_gas[ ri[ ri[0]:ri[ll
+1]-1 ] ]]])
   endfor
   ymin_r_gas+=(gasm_cum)  ; Sigma(<r)
   yplot_gas+=(gasm)       ; Sigma(r)
endfor
```

Any help/idea/feedback will be very useful!
Thanks
Stefania