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module export
use struc
implicit none

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contains

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subroutine exporting(j,p_first,p_old,temp,gcum,config)
  type(eng), intent(in), dimension(:) :: temp
  real, intent(in), dimension(:) :: gcum
  type(obj), intent(in), dimension(:) :: p_old, p_first
  type(conf), intent(in) :: config
  integer, intent(in) :: j
  integer :: i
  92 format(2(f14.5))
  94 format(4(f14.5))
  99 format(9(f14.5))
  open(10,file="data/" // config%LR2(config%lennar) //config%V1(config%VV) //
"firend" // achar(j+64) // ".dat")
  open(11,file="data/" // config%LR2(config%lennar) //config%V1(config%VV) //
"energy" // achar(j+64) // ".dat")
  open(12,file="data/" // config%LR2(config%lennar) //config%V1(config%VV) //
"densig" // achar(j+64) // ".dat")
  do i=1,config%n_particles
    write(10,94),p_first(i)%x,p_first(i)%y,p_old(i)%x,p_old(i)%y
  end do
  do i=1,config%timebond
    write (11,99), i*config%dt,temp(i)
  end do
  i=1
  do while (config%dr*i<config%L*0.5)
    write (12,92), config%dr*i,gcum(i)/(3.1415*config%dr*(2*i+1)*config%timebond)
    i=i+1
  end do
  close(10)
  close(11)
  close(12)
end subroutine exporting
!-----
subroutine exporting1(config,tm)
  type(conf), intent(in) :: config
  type(eng), intent(in), dimension(:) :: tm
  integer :: i
  90 format(8(f14.5))
  open(9,file="data/" // config%LR2(config%lennar)// config%V1(config%VV) //
"config.dat")
  write(9,*),"Molecular Dynamics with The" // config%LR(config%Lennar)
  write(9,*),"with ",config%V2(config%VV)
  write(9,*),config%V2(config%VV)
  write(9,*),"Timebond :",config%timebond, " Cutoff :",config%Cutoff
  write(9,*),"Particles :",config%n_particles," templ :",config%templ
  write(9,*),"Temprature:",config%templ
  write(9,*),"v max :",config%v_max
  write(9,*),"dt :",config%dt
  write(9,*),"dr :",config%dr
  write(9,*),"-----"
  write(9,*),"L MPE MKE MTE MTemp MVirial Mr2
Mdr2"
  do i=1,config%step
    write(9,90),config%L1 + config%dL*i,tm(i)
  end do
  close(9)
end subroutine exporting1

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!-----
subroutine print1(config)
  type(conf)  :: config
  print *, "Molecular Dynamics with The " // config%LR(config%Lennar)
  print *, "with ", config%V2(config%VV)
  print *, "Hamid Abbaszadeh, hamidabp@yahoo.com 2006/01/12"
  print *, "Number of Particles :", config%n_particles
  print *, "Total Time          :", config%timebond*config%dt
  print *, "Temperature         :", config%temp1
  print *, "dt                  :", config%dt
  print *, "dr                  :", config%dr
  print
  *, "-----"
  print *, "          L          MTE          MTemp          MPR          Mdr2          Mr2          CPU
time"
end subroutine print1
!-----
subroutine printresult(tm,t,L)
  type(eng)   :: tm
  real        :: t,L
  11 format(7(f11.5))
  write(*,11), L, tm%e, tm%t, tm%pr, tm%dr2, tm%r2, t
end subroutine printresult
end module export

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