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PROGRAM sig2pl
*****
* Conversion of sigma to plasmafrequency using sum-rule *
* the standard input file must have the format x (cm-1) sig1 (Ohm-1cm-1)*
* The outputfile comes as: x plasmafrequency**2 (cm-2). *
*****
REAL X(100000),sig(100000),sum,pi,step,nup
INTEGER I,mm
pi=4.*atan(1.)
mm=100000
do 10 i=1,mm
  READ(*,*,END=11) X(i),sig(i)
10 continue
  sum=0
11 mm=i-1
  do 25 i=1,mm-1
    step=x(i+1)-x(i)
    sum=sum+step*(sig(i)+sig(i+1))/(2*0.0333795)
    nup=0
    if (sum.gt.0) nup=sqrt(4*sum/pi)
    write(*,*) x(i+1),nup*nup
25 continue
END

```