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PROGRAM etoll
*****
* Conversion of dielectric functions to pseud0-loss function.          *
* the standard input file must have the format                        *
* x epsx1 epsx2 epsy1 epsy2 epsz1 epsz3                             *
* from standard input it reads                                       *
* filename of file containing dielectric tensor cmponents along x, y, z
* angle of incidence                                                 *
* The outputfile comes as x, pseudoloss, loss.                       *
*****
REAL X(100000),e1,e2,pi,angle,phase,sn2,a1,a2,b1,b2,n1,n2,cst
complex epsil(100000),los,f,nab(100000)
INTEGER I,mm
character*40 flin
read(*,'(a40)') flin
read(*,*) angle
open(17,file=flin)
pi=4.*atan(1.)
sn2=sin(angle*pi/180)
sn2=sn2**2
cst=cos(angle*pi/180)
mm=100000
do 10 i=1,mm
  READ(17,*,END=11) X(i),a1,a2,b1,b2,e1,e2
  epsil(i)=cplx(e1,e2)
  nab(i)=csqrt(cplx(a1,a2))
10 continue
11 mm=i-1
close(17)
do 25 i=1,mm
  n1=real(nab(i))
  n2=aimag(nab(i))
  f=cexp(cplx(0,pi/2-atan(n2/n1)))
  los=f*csqrt(1.-sn2/epsil(i))/(1+cabs(los/(nab(i)*cst))**2)
  write(*,*) x(i),aimag(los),-aimag(1/epsil(i))
25 continue
END

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