

clc

clear all

I=15;

Ti=1;

K=linspace(sqrt(23),sqrt(28),10);

for h=1:10

k0=K(1,h);

thetahole=[pi/18,pi/2];

for t=1:2

dimk=zeros(1,2\*I+1);

c=0;

theta=thetahole(1,t);

sigma=0;

sigmad=0;

for k=-I:I

c=c+1;

for x=0:30

u=1;

a=I-k-x;

b=I-x;

d=x-k;

if a<0 || b<0 || d<0

a=1;

b=a;

d=a;

u=0;

end

dimk(1,c)=dimk(1,c)+((-1)^x)\*sin(theta/2)^(k+2\*x)\*cos(theta/2)^(2\*I-k-2\*x)/(factorial(a)\*factorial(b)\*factorial(d)\*factorial(x))\*u;

end

dimk(1,c)=(factorial(I)^2\*factorial(I+k)\*factorial(I-k))^.5\*dimk(1,c);

sigma=sigma+exp(-k^2/(2\*k0^2));

sigmad=sigmad+dimk(1,c)^2\*exp(-k^2/(2\*k0^2));

end

w(1,t)=(2\*I+1)^2\*Ti\*sigmad/sigma;

end

finalratio(1,h)=w(1,1)/w(1,2)\*10^-8;

end

E1=[.82 .82 .82 .82 .82 .82 .82 .82 .82 .82];

plot(K0^2,finalratio,'g',K0^2,E1,'r')

set(gcf,'color',[1,1,1])

ylabel('W(0)/W(90)')

xlabel('K0^2')