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%strips have different 1/period and width on upper (Ku,cu) and bottom (Kb,cb) planes:
d=.15;dx=2*pi*d;Ku=1;Kb=1;cu=0;cb=0;L=32;  o=1e-6*Ku;  N=16;M=16;NN=2*N+1;MM=M+1;
h=4;H=(1+h)*max(N,M);a=rand(2*N,1);P=[1 plg(H,cu)'];Q=[1 plg(H,cb)'];H=H+2;%P_0=P(H)
Du=zeros(2*h*N*L,2*M+1);Db=zeros(2*h*M,2*N*L);   P=[fliplr(P) P];Q=[fliplr(Q) Q];
ia=MM*NN;ib=(NN-1)*MM; ua=zeros(ia);ub=zeros(ia,ib);ba=zeros(ib,ia);bb=zeros(ib);
for i=1:L/2+1;   r=Ku*(i-1)/L+o;o=0;for n=-N:N-1;rn=r+n*Ku;nN=n+N;for m=-M:0;mM=m+M;
sm=m*Kb;k=sqrt(rn^2+sm^2);th=tanh(k*dx);ch=cosh(k*dx);rk=1;if k~=0;rk=rn/k;end;
for n1=-N:N;nn=n1+N;ua(mM*NN+NN,mM*NN+nn+1)=(-1)^n1*pvx(-n1-r/Ku,-cu);end;     %=>RHS
for n1=-N:N;nn=n1+N;ua(mM*NN+nN+1,mM*NN+nn+1)=(th*sign(n-n1+.5)-rk)*pvx(n-n1,cu);end;
for m1=-M:0;mm=m1+M;ub(mM*NN+nN+1,nN*MM+mm+1)=-rk*(pvx(m-m1,cb)+pvx(-m-m1,cb))/ch;end;
for m1=-M:0;mm=m1+M;if m~=0;xr=th*(sign(m-m1+.5)*pvx(m-m1,cb)+sign(m+m1-.5)* ...
pvx(-m-m1,cb))-(pvx(m-m1,cb)+pvx(-m-m1,cb))*sm/k;else;xr=k*(-1)^m1*th*(pvx(-m1+ ...
.5e-6,-cb)-pvx(-m1-.5e-6,-cb))*2e6/Kb-2*pvx(-m1,cb);end;bb(nN*MM+mM+1,nN*MM+mm+1)=xr;
end;    for n1=-N:N;nn=n1+N;xr=-pvx(n-n1,cu)/ch;if m~=0;xr=sm*xr;end;%m=0:*k
ba(nN*MM+mM+1,mM*NN+nn+1)=xr;end;end;end;%e.danicki the matrix of Eqs. is evaluated%%
X=[ua ub;ba bb];x=X\[zeros((M+1)*NN-1,1);sin(pi*r/Ku)*Ku/pi;zeros(ib,1)]; %and solved
a=x(1:ia);a=reshape(a,NN,MM);a=[a fliplr(a(:,1:M))];  aa=flipud(conj(a)); %for 1centr
b=x(ia+1:ia+ib);b=reshape(b,M+1,NN-1);b=[b;flipud(b)];bb=fliplr(conj(b));%strp.on V=1
for n=-h*N:h*N-1;Du(L*(n+h*N)+i,:)=P(H-n-1+[-N:N])*a;if i>1;Du(L*(n+h*N)+L+2-i,:)= ...
P(H-n-1+[-N:N])*aa;end;end;for m=-h*M:h*M-1;Db(m+h*M+1,i:L:2*N*L)=Q(H-m-1+[-M:M+1])*b;
if i>1;Db(m+h*M+1,L+2-i:L:2*N*L)=Q(H-m-1+[-M:M+1])*bb;end;end; end;Du=Du(:,1:2*M);
F=[zeros(2*h*N*L,3*h*M/4) Du zeros(2*h*N*L,3*h*M/4)]+[zeros(3*h*N*L/4,2*h*M); ...
Db.';zeros(3*h*N*L/4,2*h*M)];  for n=-h*N*L:h*N*L-1;r=n*Ku/L; for m=-h*M:h*M-1;s=m*Kb;
F(1+n+h*N*L,1+m+h*M)=F(1+n+h*N*L,1+m+h*M)/sinh((n==0&m==0)+d*sqrt(r^2+s^2)/2);end;end;
Ez=fftshift(fft2(fftshift(real(F))));fm=max(max(abs(Ez))');    f=real([Ez(h*N*L+1+ ...
[-2*h*N:2*h*N-1]',:) Ez(h*N*L+1+[-2*h*N:2*h*N-1]',:)]); mesh(10*f.*f.'/fm^2); %stress_
%subroutines            %%##stress:=Ez(x,y;Ku,cu,Kb,cb)*Ez(y,x;Kb,cb,Ku,cu)=^^forEqal^
        function p=plg(l,x);    p=zeros(l,1);pm=1;px=x;p(1)=x;for ll=2:l;
pll=(x*(2*ll-1)*px-(ll-1)*pm)/ll;pm=px;px=pll;p(ll)=pll;end;
        function f=pvx(v,x);    z=(1-x)/2;a=1;b=1;nn=100;while nn<1/z;nn=100+nn;end;
nn=2*nn;f=1;if abs(z)<1;for n=1:nn;a=z*a*(1-(1+v)/n);b=b*(1+v/n);f=f+a*b;end;end
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