

```
1. % getWaveFunction: function description
2. function [waveLeft, waveRigth] = getWaveFunction(delta, meff, U, Ez)
3.     hbar = 1.0551*1e-34;
4.
5.     EzLen = length(Ez);
6.     ULen = length(U);
7.
8.     waveLeft = zeros(EzLen, ULen);
9.     waveRigth = zeros(EzLen, ULen);
10.
11.     for j = 1 : EzLen
12.         kLeft = sqrt( 2*meff(1)*(Ez(j) - U(1)) )/hbar;
13.         kRight = sqrt( 2*meff(end)*(Ez(j) - U(end)) )/hbar;
14.
15.         d1 = ones(ULen-1, 1);
16.         d2 = 2*delta^2*meff(2:end-1).*( Ez(j)-U(2:end-1) )./hbar^2 - meff(2:end-1)./meff(3:end) - 1;
17.         d2 = [1i*kLeft*delta - 1, d2, 1i*kRight*delta - 1];
18.         d3 = [1, meff(2:end-1)./meff(3:end)];
19.
20.         H = diag(d1, -1) + diag(d2) + diag(d3, +1);
21.
22.         fLeft = [2*1i*kLeft*delta; zeros(ULen-1, 1)];
23.         fRight = [zeros(ULen-1, 1); 2*1i*kRight*delta];
24.
25.         waveLeft(j, :) = (inv(H)*fLeft)';
26.         waveRigth(j, :) = (inv(H)*fRight)';
27.     end
28.
29. end
```