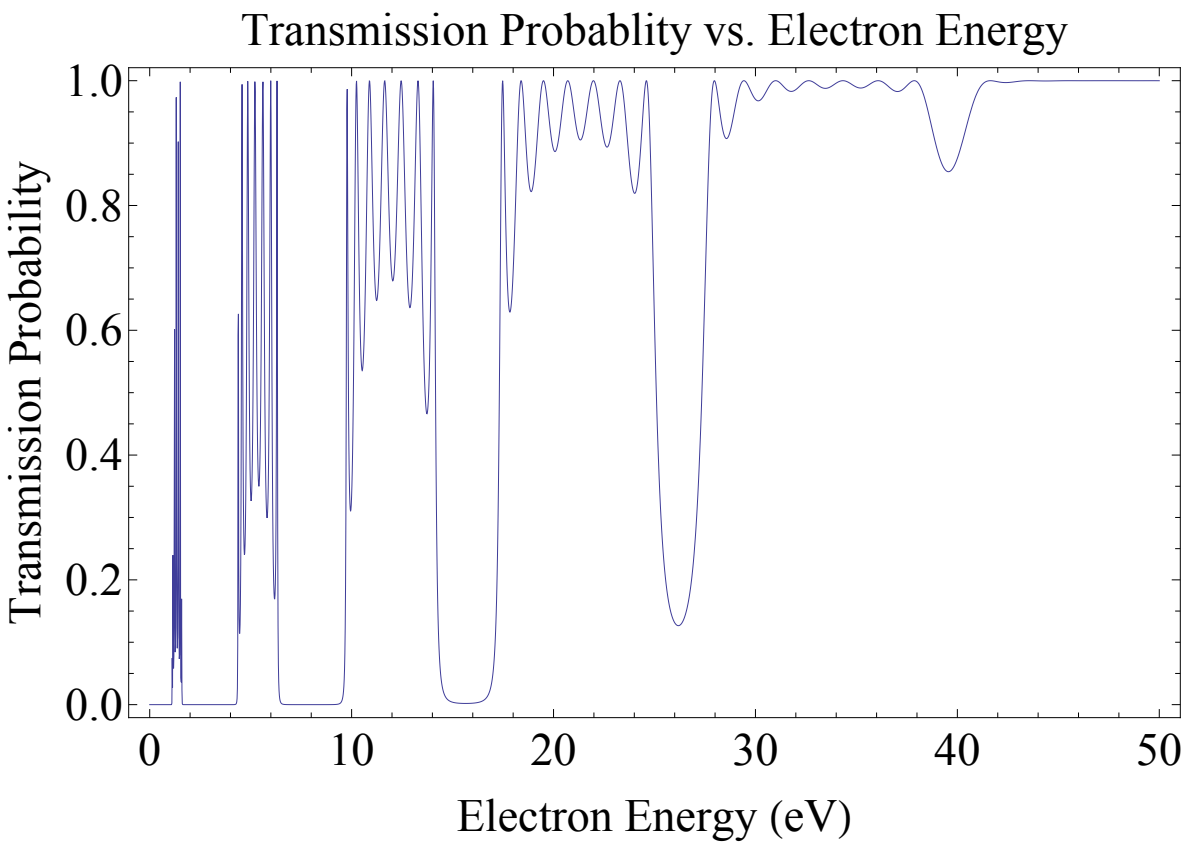
```
LbCount = 0;
LwCount = 0;
A = {{1, 0}, {0, 1}};
For[i = 0, i ≤ 15, i++,
 If[EvenQ[i], A = A.(Inverse[{{Exp[I (LwCount * Lw + LbCount * Lb) * kf],
          Exp[-I (LwCount * Lw + LbCount * Lb) * kf]},
         {kf * Exp[I * (LwCount * Lw + LbCount * Lb) * kf],
          -kf * Exp[-I * (LwCount * Lw + LbCount * Lb) * kf]}}].
       {{Exp[I (LwCount * Lw + LbCount * Lb) * kp], Exp[-I (LwCount * Lw + LbCount * Lb) *
           kp]}, {kp * Exp[I * (LwCount * Lw + LbCount * Lb) * kp],
         -kp * Exp[-I * (LwCount * Lw + LbCount * Lb) * kp]}}),
  A = A.(Inverse[{{Exp[I (LwCount * Lw + LbCount * Lb) * kp],
          Exp[-I (LwCount * Lw + LbCount * Lb) * kp]},
         {kp * Exp[I * (LwCount * Lw + LbCount * Lb) * kp],
          -kp * Exp[-I * (LwCount * Lw + LbCount * Lb) * kp]}}].
       {{Exp[I (LwCount * Lw + LbCount * Lb) * kf], Exp[-I (LwCount * Lw + LbCount * Lb) *
           kf]}, {kf * Exp[I * (LwCount * Lw + LbCount * Lb) * kf],
         -kf * Exp[-I * (LwCount * Lw + LbCount * Lb) * kf]}})];
 If[EvenQ[i], LbCount = LbCount + 1, LwCount = LwCount + 1];]

m = 511 * 10^3 / (2.998 * 10^8)^2; (* mass of an electron in keV/c^2 *)
V = 10; (* Potential energy in eV *)
hb = 6.582 * 10^-16; (* hbar in eV*s *)
kp = Sqrt[2 * m * (E0 - V) / hb^2];
kf = Sqrt[2 * m * E0 / hb^2];
Lw = .4 * 10^-9 ; (* Well width in nm *)
Lb = .1 * 10^-9;(* Barrier width in nm *)
p11 = A[[1]][[1]];
```

```
Plot[1 / (p11 * Conjugate[p11]), {E0, 0, 50},
 Frame → True, FrameLabel → {{"Transmission Probability", ""},
   {"Electron Energy (eV)", "Transmission Probablity vs. Electron Energy"}},
 LabelStyle → Directive[Large]]
```




```
(*Plot[{Re[p11],Piecewise[{{Re[p11],-1≤Re[p11]≤1}},_]},
 {E0,0,30},Filling→ {2→{Axis,Yellow}},
 PlotStyle→{Green,Directive[Red,Thick,Style→Large]},Frame→True,FrameLabel→
  {{"Re[p11] ",""},{"Electron energy (eV)","Re[p11] vs. Electron Energy"}},
 RotateLabel→True,LabelStyle→Large]*)
```