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```
% Img 3.4, 3.5

clear; clc;

e = 1.6e-19; eVtoJ = e; JtoEv = e^(-1);
me = 9.11*1e-31; nm = 1e-9;

% Do it smooth
dis = 1;
% atoms' radius
dx = 0.56; %nm
dx = dx/dis;

% Count layers
a = 10; % monolayers
b = 6;
c = [2 5 7 10];

a = a*dis;
b = b*dis;
c = c*dis;

sizeHS = a + b + c + b + a;

% Fermi Energy
EFermi = 1.51*1e-20; % J

% Applyied voltage
dU = 0:0.01:0.6;

% Ec
Ec1 = [zeros(1, a), 0.5*ones(1, b), zeros(1, c(1)), 0.5*ones(1, b),
       zeros(1, a)];
Ec2 = [zeros(1, a), 0.5*ones(1, b), zeros(1, c(2)), 0.5*ones(1, b),
       zeros(1, a)];
Ec3 = [zeros(1, a), 0.5*ones(1, b), zeros(1, c(3)), 0.5*ones(1, b),
       zeros(1, a)];
Ec4 = [zeros(1, a), 0.5*ones(1, b), zeros(1, c(4)), 0.5*ones(1, b),
       zeros(1, a)];

% meff
meff1 = [0.067*ones(1, a), 0.15*ones(1, b), 0.067*ones(1, c(1)),
         0.15*ones(1, b), 0.067*ones(1, a)];
meff2 = [0.067*ones(1, a), 0.15*ones(1, b), 0.067*ones(1, c(2)),
         0.15*ones(1, b), 0.067*ones(1, a)];
meff3 = [0.067*ones(1, a), 0.15*ones(1, b), 0.067*ones(1, c(3)),
         0.15*ones(1, b), 0.067*ones(1, a)];
meff4 = [0.067*ones(1, a), 0.15*ones(1, b), 0.067*ones(1, c(4)),
         0.15*ones(1, b), 0.067*ones(1, a)];

numPoint = 50000;
```

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```

Tr1 = getTransperent(...
    dx*nm, ...
    meff1*me, ...
    Ec1*eVtoJ,...
    numPoint...
);

J1 = getJ(dx*nm, ...
    meff1*me, ...
    Ec1*eVtoJ, ...
    dU*eVtoJ, ...
    EFermi...
);
Tr2 = getTransperent(...
    dx*nm, ...
    meff2*me, ...
    Ec2*eVtoJ,...
    numPoint...
);

J2 = getJ(dx*nm, ...
    meff2*me, ...
    Ec2*eVtoJ, ...
    dU*eVtoJ, ...
    EFermi...
);

Tr3 = getTransperent(...
    dx*nm, ...
    meff3*me, ...
    Ec3*eVtoJ,...
    numPoint...
);

J3 = getJ(dx*nm, ...
    meff3*me, ...
    Ec3*eVtoJ, ...
    dU*eVtoJ, ...
    EFermi...
);

Tr4 = getTransperent(...
    dx*nm, ...
    meff4*me, ...
    Ec4*eVtoJ,...
    numPoint...
);

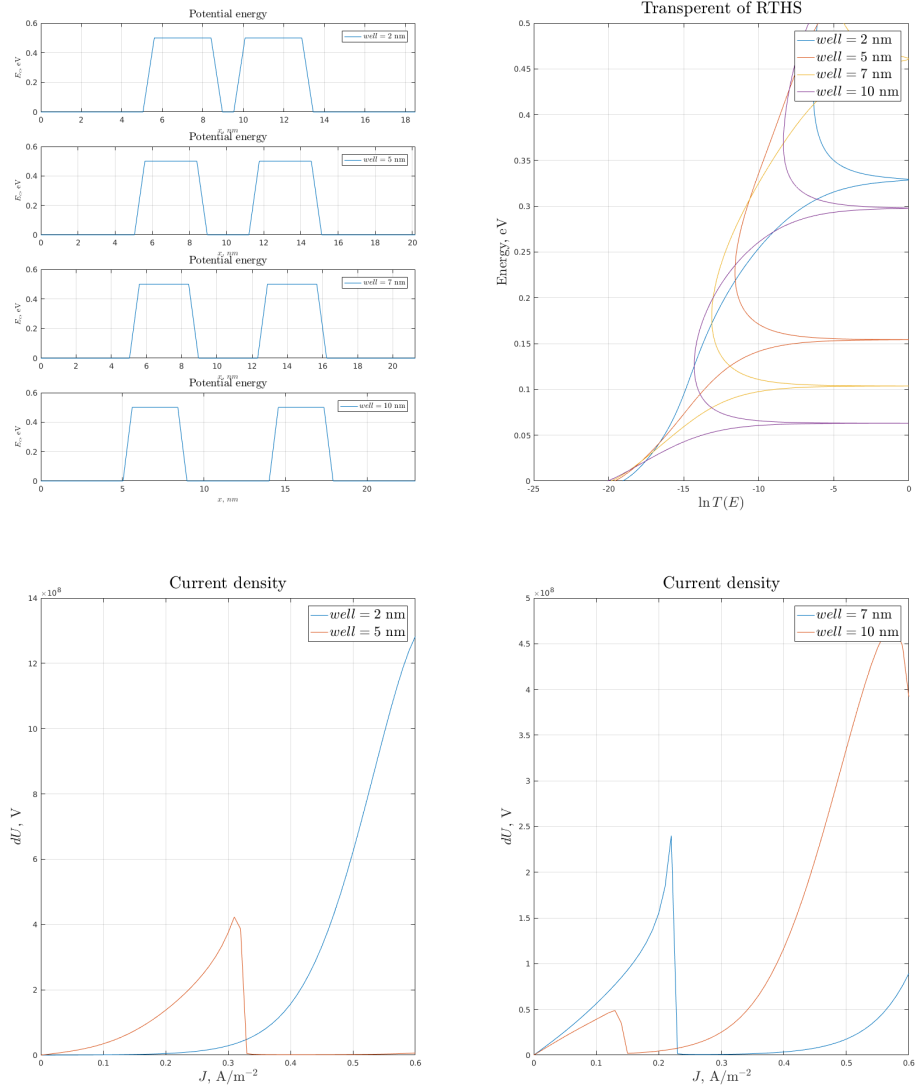
J4 = getJ(dx*nm, ...
    meff4*me, ...
    Ec4*eVtoJ, ...
    dU*eVtoJ, ...
    EFermi...

```

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);

```
showResult(dx*nm, sizeHS, Ec1, Ec2, Ec3, Ec4, J1, J2, J3, J4, dU, Tr1,
Tr2, Tr3, Tr4, c); % Img 3.4, 3.5
```



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