Network I

```matlab
function [lambda_2,R]=XXH_0(a,a0,d,d0,N)
A=zeros(N);
for i=2:N
    for j=3:N
    A(1,i)=a;
    A(j,j-1)=a0;
    A(2,N)=a0;
    end
end
D=zeros(N);
for ii=1:N
    D(ii,ii)=sum(A(ii,:));
end
L=D-A;
% LL=zeros(2*N);
LL=blkdiag(L,L);
kl=zeros(N);
for k=2:N
    kl(1,1)=d0;
    kl(k,k)=d;
end
LI=[kl,-kl;-kl,kl];
ZL=LL+LI;
[v]=eig(ZL);
ss=sort(v);
s=ss(abs(imag(ss))<=eps);
% s(s==0)=[]
lambda_N=s(end); %最大特征值
lambda_2=s(2);%最小非零特征值
R=lambda_N/lambda_2;
double(R);
end
```

Network II

```matlab
function[lambda_2,R]=XXH(a,a0,d,d0,N)
A=zeros(N);
for i=2:N
    for j=3:N
    A(i,1)=a;
    A(j,j-1)=a0;
    A(2,N)=a0;
    end
end
D=zeros(N);
for ii=1:N
    D(ii,ii)=sum(A(ii,:));
end
L=D-A;
% LL=sym(zeros(2*N));
LL=blkdiag(L,L);%根据输入参数构造分块对角阵
kl=zeros(N);
for k=2:N
    kl(1,1)=d0;
    kl(k,k)=d;
end
LI=[kl,-kl;-kl,kl];
ZL=LL+LI;
[v]=eig(ZL);
ss=sort(v);
s=ss(abs(imag(ss))<=eps);
lambda_N=s(end);%最大特征值
lambda_2=s(2);%最小非零特征值
R=lambda_N/lambda_2;
double(R);
end
```