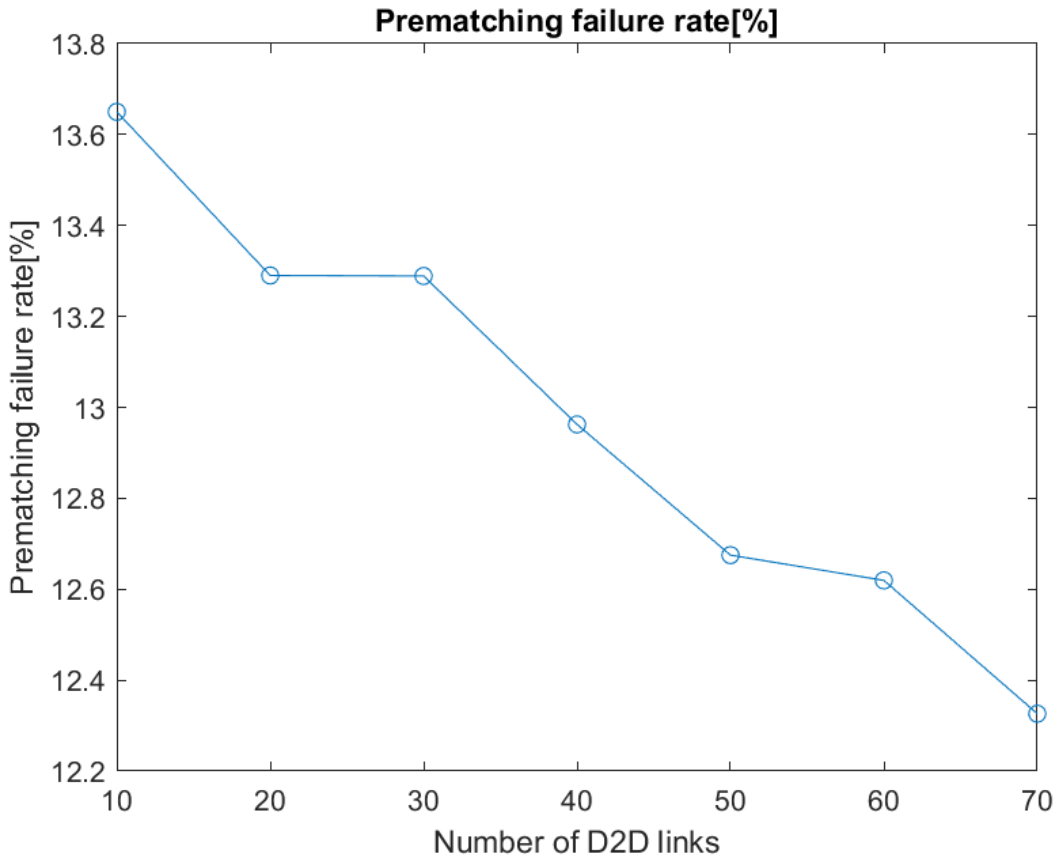
Date:2021-12-10

Simulate the Pre-matching Algorithm for over 1200 iterations due the fact that the power gain of each Rayleigh fading channel is random number. But it still doesn't quite agree with the results in the reference paper, maybe more iterations will be needed to get the corresponding results.



Here is the simulation code:

```
Pkc=0.1995262315;
Pth1=10*10^(-6);
Pmax=0.1995262315;
Tmin=2;
number=10:10:70;
fail_rate_total=[];
for j=1:1200
fail_rate=[];
for i=10:10:70
[D2D,CUE]=system(i,i,15);
[Sid,InfD,EhaD]=Prematch(D2D,CUE,Pkc,Pth1,Pmax,Tmin,15);
fail=size(InfD,2)/i;
fail_rate(end+1)=fail;
end
j
fail_rate_total(j,:)=fail_rate;
end
fail_rate_total=sum(fail_rate_total)/1200;
fail_rate_total=fail_rate_total*100;
plot(number,fail_rate_total,'-o')
title('Prematching failure rate[%]')
xlabel('Number of D2D links')
```

```
ylabel('Prematching failure rate[%]')
saveas(gcf,'Prematching failure rate for 1200 iterations.png');
```

But i will just skit this part for a while, and start to simulate the other Algorithms later.