function [t,p,r,Jth\_T2,Jth\_SPE]=DPLS\_nomal(X,Y)

% clc

% clear all

% data=xlsread('nomal\_data.xlsx');

% Y=data(1:5,:);

% X=data(1:50,:);

%求均值

Y\_mean=mean(Y,2);

X\_mean=mean(X,2);

%求标准差

Y\_std = std(Y,0,2);

X\_std = std(X,0,2);

%数据标准化

[mY,nY]=size(Y);

[mX,nX]=size(X);

Y=(Y - repmat(Y\_mean,1,nY))./repmat(Y\_std,1,nY);

X=(X - repmat(X\_mean,1,nX))./repmat(X\_std,1,nX);

Y=transpose(Y);

X=transpose(X);

for i= 2:nX-10

xf(1:mX) = X(i,:);

xf(mX+1:2\*mX) = X(i+1,:);

xf(2\*mX+1:3\*mX) = X(i+2,:);

xf(3\*mX+1:4\*mX) = X(i+3,:);

xf(4\*mX+1:5\*mX) = X(i+4,:);

Z(i-1,:) = xf;

yf(1) = Y(i,:);

yf(2) = Y(i+1,:);

yf(3) = Y(i+2,:);

yf(4) = Y(i+3,:);

yf(5) = Y(i+4,:);

Yf(i-1,:) = yf;

end

[nZ,mZ]=size(Z);

%标准模型

[t,p,u,q,w,E] = PLSI (Z,Yf);

r = w \* (p'\*w)^(-1);

%求X的协方差矩阵的最大特征值

s=cov(Z);

Romita\_max=max(eig(s));

%计算控制限

m=mZ;

n=nZ;

alpha=0.95;%置信水平

Jth\_T2=m\*(n^2-1)\*finv(alpha,m,n-m)/(n\*(n-m));

for i=1:nZ

% tnew = Z(i,:)\*r;

xnew = Z(i,:)\*(eye(mZ)-p\*r');

SPE(i) = norm(xnew)^2;

end

a=mean(SPE);

b=std(SPE);

g=b/(2\*a);

h=2\*a^2/b;

% Jth\_SPE=Romita\_max\*chi2inv(alpha,m);

Jth\_SPE=g\*chi2inv(alpha,h);