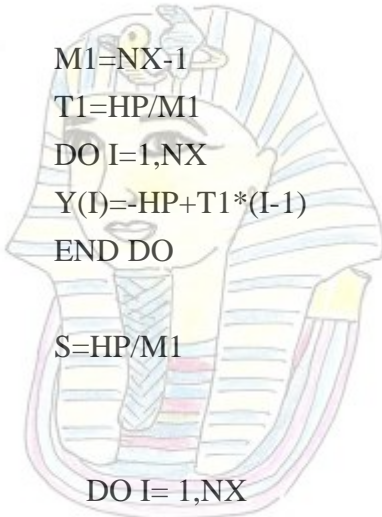```
SUBROUTINE FP(FP,NX,KHP,HP)

REAL KHP,FP(NX,NX),Z(NX),Y(51)
COMPLEX IM

M1=NX-1
T1=HP/M1
DO I=1,NX
Y(I)=-HP+T1*(I-1)
END DO

S=HP/M1

  DO I= 1,NX
  YI= Y(I)
  DO J= 1,NX
  J1= J-1
  I1= J+1
  IF(J.EQ.1) SJ= 0
  IF(J.NE.1) SJ= S
  IF(J.EQ.NX)SJJ= 0
  IF(J.NE.NX)SJJ= S
  YJ=Y(J)
  IF(J.EQ.1) YJ1= -1.0
  IF(J.NE.1) YJ1= Y(J1)
  YJJ= Y(I1)

  Q=0.57735
  ONO=0.5*(1.+2.*KHP/SINH(2.*KHP))
  Y1=(YJ+YJ1)/2
  Y2=(YJ+YJJ)/2.
  ZE1=Y1+SJ/2*(-Q)
  ZE2=Y1+SJ/2*Q
  Z11=Y2+SJJ/2*(-Q)
  Z22=Y2+SJJ/2*Q
  U1=SJJ/4*((1+Q)*COSH(KHP*(Z11+HP))+(1-Q)*COSH(KHP*(Z22+HP)))
  U2=SJ/4*((1-Q)*COSH(KHP*(ZE1+HP))+(1+Q)*COSH(KHP*(ZE2+HP)))
```
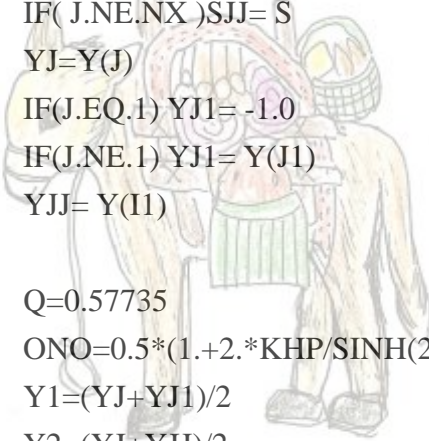
```
HH=-(U1+U2)*COSH(KHP*(YI+HP))/ONO/SINH(KHP)/COSH(KHP)*KHP**2
IF(J.EQ.1 .OR. J.EQ.NX) HH=HH*2
FP(I,J)= HH
END DO
END DO

RETURN
END
```

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阿拉丁神燈