CIRCUITOS IMPLEMENTADOS

CIRCUITOS UTILIZADOS EN EL SIMULADOR "ELDO"

```
AMODEL CONVERSOR_V_I (P1,P2,P3,P4);
 DECLARE PIN P1,P2,P3,P4 : ELECTRICAL;
 DECLARE STATE I1, I2 : REAL;
 DECLARE PARAM N,H : REAL;
 INITIALIZE
  MAKE H=1
  MAKE N=1
 ENDINITIALIZE
 ANALOG
  MAKE I1=VOLT.DIFF(P3,P4)*H/N
  MAKE I2=VOLT.DIFF(P1,P2)*H/N
  MAKE CURR.ON(P1)=I1
  MAKE CURR.ON(P2)=-I1
  MAKE CURR.ON(P3)=-I2
  MAKE CURR.ON(P4)=I2
 ENDANALOG
ENDMODEL
```

```
AMODEL TRANSFORMADOR_IDEAL(P1,P2,P3,P4);
DECLARE PIN P1,P2,P3,P4 : ELECTRICAL;
DECLARE IC IREF :ELECTRICAL;
DECLARE PARAM N:REAL;
INITIALIZE VSOURCE(P3,P4) ENDINITIALIZE
ANALOG
MAKE VOLT.ACROSS(P3,P4)=VOLT.DIFF(P1,P2)/N
MAKE CURR.ON(P1)=CURR.VALUE(IREF)/N
MAKE CURR.ON(P2)=-1*CURR.VALUE(IREF)/N
ENDANALOG
ENDMODEL
```

CIRCUITOS UTILIZADOS EN EL SIMULADOR "PSPICE"

```
CONVERSOR V-I
hc01 c04 NODO1 vc02 N/H
vc01 c03 c04 0
rc01 c01 NODO2 1n
hc02 c05 NODO4 vc01 N/H
vc02 c05 c06 0
rc02 c06 NODO3 1n
```

```
TRANSFORMADOR IDEAL
e in5 n6 n3 n4 rt
v dn5 in5 0
f n4 n3 v rt
rs dn5 n5 1n
rp n3 n4 1000G
```

PROGRAMAS UTILIZADOS

```
*
```

CÁLCULO DE HILO ÓPTIMO PARA EL CASO DE ENTREHIERRO CENTRAL

```
*

#include <stdio.h>
#include <stdlib.h>
#include <math.h>
float k;

main()
{
int i,n,j,mini,minn;
double rl,r,min,d,a[5001],p();
FILE *fp;
fp=fopen("pgce0.prn","w");
k=0;
for (rl=0;rl<3.01;rl=rl+0.05)
{
        r=pow(10,rl)/10;
        for (i=1;i<113;i++)
        {
         for (n=1;n<41;n++)
         {
         a[40*(i-1)+n]=p(r,i*(1.0*n)/r/125,n);
         }
        }
        min=1000000000000;
        mini=1;
        minn=1;
        for (i=1;i<113;i++)
        {
```

```
        for (n=1;n<41;n++)
        {
         if (a[40*(i-1)+n]<min)
         {
         mini=i;
         minn=n;
         min=a[40*(i-1)+n];
         }
        }

       }
printf("\n%g",rl);

fprintf(fp,"\n%.3g\t%.3g\t%d\t%.3g\t%.3g\t%.3g",r,mini*(1.0*minn)/r/125,min
n,a[40*(mini-1)+minn],0.886*mini/125,minn/r);

}

fclose(fp);
}

double p(r,d,n)
double r,d;
int n;
{
double parcial,x;
x=d*0.886*sqrt(0.886*r*d/n);
parcial=r*x/(d*d*0.886*0.886);
parcial=parcial*((n*n/2+1)*(sinh(2*x)+sin(2*x))-4*(n*n/4-1)*
            (sinh(x)*cos(x)+cosh(x)*sin(x)));
parcial=parcial/(3*(cosh(2*x)-cos(2*x)));
parcial=parcial+4*r*k*k/(3.1416*d);
return(parcial);
}
```

A2.2

*

CÁLCULO DE HILO ÓPTIMO PARA EL CASO DE ENTREHIERRO CENTRAL Y EXTERIOR

*

```
#include <stdio.h>
#include <stdlib.h>
#include <math.h>
float k;

main()
{
int i,n,j,mini,minn;
double rl,r,min,d,a[5001],p();
FILE *fp;


fp=fopen("pgce0.prn","w");
k=0;
for (rl=0;rl<3.01;rl=rl+0.05)
{
        r=pow(10,rl)/10;
        for (i=1;i<113;i++)
        {
         for (n=1;n<41;n++)
         {
         a[40*(i-1)+n]=p(r,i*(1.0*n)/r/125,n);
         }
        }
        min=1000000000000;
        mini=1;
        minn=1;
```

```
        for (i=1;i<113;i++)
        {

         for (n=1;n<41;n++)
         {
          if (a[40*(i-1)+n]<min)
          {
          mini=i;
          minn=n;
          min=a[40*(i-1)+n];
          }
         }

        }
printf("\n%g",rl);

fprintf(fp,"\n%.3g\t%.3g\t%d\t%.3g\t%.3g\t%.3g",r,mini*(1.0*minn)/r/125,min
n,a[40*(mini-1)+minn],0.886*mini/125,minn/r);



}

fclose(fp);
}



double p(r,d,n)
double r,d;
int n;
{
double parcial,x;

x=d*0.886*sqrt(0.886*r*d/n);
```

A2.4

```
parcial=r*x/(d*d*0.886*0.886);
parcial=parcial*((n*n/2+1)*(sinh(2*x)+sin(2*x))-4*(n*n/4-1)*(sinh(x)*cos(x)+cosh(
x)*sin(x)));
parcial=parcial/(3*(cosh(2*x)-cos(2*x)));
parcial=parcial+4*r*k*k/(3.1416*d);


return(parcial);
}
```

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