FreeFem++ a_tutorial.edp

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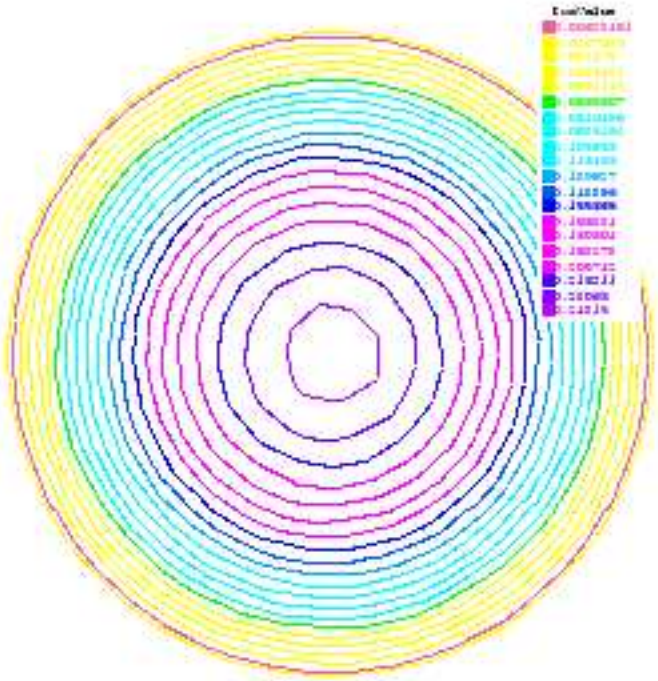
```
// This test shows some powerful features of freefem++ on a
// simple example: $-\Delta(u)=1$ in the unit cercle with $
// border of the unit cercle. this problem has an analytical
// u = (1-x^2-y^2)/4
real pi=4*atan(1);
border a(t=0,2*pi){ x = cos(t); y = sin(t);label=1;};

mesh disk = buildmesh(a(50));
plot(disk);
fespace fempl(disk,P1);
fempl u,v;

problem laplace(u,v) =
    int2d(disk)( dx(u)*dx(v) + dy(u)*dy(v) )      //  bilinear
  + int2d(disk)( -1*v )                           //  linear fo
  + on(1,u=0) ;                                 // boundary con

laplace;
fempl err=u-(1-x^2-y^2)/4;

plot (u,value=true,wait=true);
plot(err,value=true,wait=true);

cout << "error L2=" << sqrt(int2d(disk)( (u-(1-x^2-y^2)/4) ^2)
cout << "error H10=" << sqrt(   int2d(disk)((dx(u)+x/2)^2)
```



```
Nb of common points 1
 --  mesh:  Nb of Triangles =    434, Nb of Vertices 243
  Nb of edges on Mortars  = 0
  Nb of edges on Boundary = 50, neb = 50
Nb Of Nodes = 243
Nb of DF = 243
  x min max 5.3012e-32 0.249384
-- Solve :          min 5.3012e-32  max 0.249384
```