

What is FreeFem++ ?

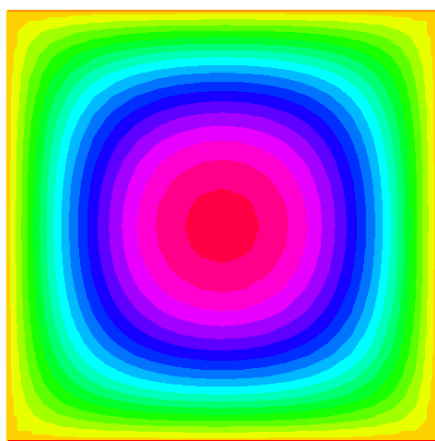
FreeFEM++ is a open source program of the finite element method to solve the partial differential equation developed by the staff of "Pierre et Marie Curie university" of France. The user only describes , 1) Shape of boundary, 2) Boundary condition, and 3) Partial differential equation in the language of the Pascal style that is called "Gfem".

FreeFEM++ does the all of the work, automatic mesh generation and obtaining numerical solutions.

A wide-ranging problem can be solved extremely easily compared with other programs.

FreeFem++ is one of the most popular simulation tools in the field of engineering and science.

FreeFem++ example code for 2D Poisson equation:



```
real NX=20, NY=20 ;
mesh T0h=square(NX,NY,[1.0*x,1.0*y]);
plot (T0h,wait=true);
fespace V0h(T0h,P1);
V0h u0,v0;
solve eq(u0,v0)
=int2d(T0h)(dx(u0)*dx(v0)+dy(u0)*dy(v0))
-int2d(T0h)(1.0*v0)
+on(2,3,u0=1.0); // boundary condition
plot(u0,wait=true);
```

FreeFem++ is written in C++ and the FreeFem++ language is a C++ idiom.

It runs on any Unix-like OS (with g++ version 3 or higher, X11R6 or OpenGL with GLUT) Linux, FreeBSD, Solaris 10, Microsoft Windows (95, 98, 2000, NT, XP, Vista) and MacOS X (native version using OpenGL).

FreeFem++ replaces the older freefem and freefem+.

2D and 3D analysis is now available supporting popular pre/post tools.

FreeFem++ is freely downloaded from FreeFem++ home page (<http://www.freefem.org>) under the GNU public license, GPL.