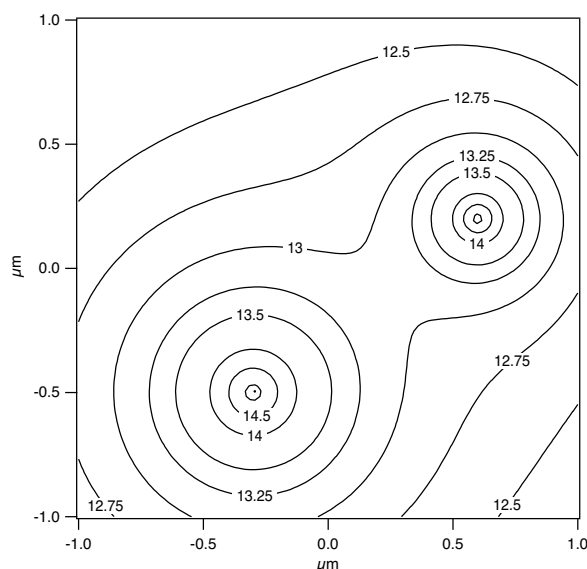# Overview

A contour plot is a two-dimensional XY plot of a three-dimensional XYZ surface showing lines where the surface intersects planes of constant elevation (Z).

One common example is a contour map of geographical terrain showing lines of constant altitude, but contour plots are also used to show lines of constant density or brightness, such as in X-ray or CT images, or to show lines of constant gravity or electric potential.

Contour Data

The contour plot is appropriate for data sets of the form:

$$z = f(x,y)$$

meaning there is only one Z value for each XY pair. This rules out 3D shapes such as spheres, for example.

You can create contour plots from two kinds of data:

- Gridded data stored in a matrix
- XYZ triplets

Gridded Data

Gridded data is stored in a 2D wave, or "matrix wave". By itself, the matrix wave defines a regular XY grid. The X and Y coordinates for the grid lines are set by the matrix wave's row X scaling and column Y scaling.

You can also provide optional 1D waves that specify coordinates for the X or Y grid lines, producing a non-linear rectangular grid like the one shown here. The dots mark XY coordinates specified by the 1D waves: