Adjusting the 2D-plot display

This document describes the interface used to modify the display format of 2D plots. You can choose to display the plot contents as an image or with contours, to change the color-scale or adjust the mapping between the data and the color-scale.

A screenshot of a computer program

Description automatically generated

Here are details of each section in this dialog:

**Mode**

The plotting mode is either *contour* or *image*. For spectroscopy *contour* is the default for MRI it would be *image*.

|  |  |
| --- | --- |
| The color scale is a 3 by N matrix which has as its rows RGB color values. These can be displayed next to the 2D plot using the color-scale button on the right of the main interface when a 2D plot is selected. Several predefined color-scales are included in Expert. You can see these by typing the name which appears in the color-scale menu in the command line interface. E.g. |  |

> hotandcold

hotandcold =

0 1 1

0 0.98 1

0 0.96 1

0 0.94 1

...

1 0.88 0

1 0.9 0

1 0.92 0

1 0.94 0

1 0.96 0

1 0.98 0

1 0 0 <= Signed scale

The first column is the amount of red, the second green and the third blue. So, in this case the color ranges from blue (most negative) to red (most positive). The last red entry in the color-scale matrix (not displayed) defines if this is a positive scale (red=0) or signed scale (red=1). Use a signed scale when the data has both positive and negative information (i.e. phase sensitive as opposed to magnitude spectra).

New color-scales can be defined in a macro and as long as they are globally accessible and appear in the color-scale menu then they can be used. The existing colorscales are defined in the macro colormaps.mac which is stored in the user preferences folder Startup.

**Contours:**

The number of contours to display can be defined here; 10 or 20 is a typical number. Note that more contours will take longer to render.

The contour spacing can be linear or logarithmic.

**Adjust levels**

*Max* and *min* define the bottom and top of the color-scale. The contours will be spaced between these according to the following formulae where *N* is the number of contours:

Linear:

Logarithmic:

The latter option is good where you want to contour both small and large amplitudes in the same plot. This is typically the case in 2D NMR spectroscopy.

Note that the *min* and *max* values are read-only and be can only be changed with the slider controls. Also there will be a minimum limit based on the measured noise level in the spectrum, this prevents too many contours being drawn.

Generally, in contour mode it is easier to adjust the contour levels coarsely with the sliders and then use the mouse scroll-wheel in the plot to give fine control. By itself the mouse wheel adjusts the bottom contour while in combination with the shift key it adjusts the top contour.

In image mode the only way to adjust the scale is with the sliders.

**Adjustment method**

Several options are provided to more easily modify the color-scale. The most useful is typically the full range (no slider adjustment possible, but the contours should be set up for easy fine adjustment) and the fully adjustable (the default).