Calculation of the ChiSquare (χ^2)

Get the ChiSquare

1.1 Introduction

The purpose of the *ChiSquare* plugin is to calculate the ChiSquare and the reduced ChiSquare, for two sets of data.

1.2 Plugin Properties

Table 1.1 lists available plugin property names, along with their data type and purpose.

Parameter Name	Data Type	Purpose
ExperimentalData	TelluriumData	Data representing Experimental data.
ModelData	TelluriumData	Data representing Model data.
NrOfModelParameters	int	Number of model parameters used to create the model data.
ChiSquare	double	The calculated ChiSquare.
ReducedChiSquare	double	The calculated reduced ChiSquare.

Table 1.1: Plugin Properties

1.3 Plugin Events

The plugin are not using any plugin events.

1.4 The execute() function

The execute() function will attempt to calculate the ChiSquare, and the reduced ChiSquare, using the data supplied by the client.

1.5 Python examples

1.5.1 Usage of the ChiSquare plugin

The python script below shows how to use the plugin.

```
1  from teplugins import *
2
3  try:
4      modelPlugin     = Plugin("tel_test_model")
5      noisePlugin     = Plugin("tel_add_noise")
6      chiSquarePlugin = Plugin("tel_chisquare")
7
8      #Generate internal test data
9      modelPlugin.execute()
10     modelData = modelPlugin.TestData
11     expData = modelPlugin.TestDataWithNoise
12
13     chiSquarePlugin.ExperimentalData = expData
14     chiSquarePlugin.ModelData = modelData
15     chiSquarePlugin.NrOfModelParameters = 1
16
17     chiSquarePlugin.execute()
18
19     chi = chiSquarePlugin.ChiSquare
20     reduced_chi = chiSquarePlugin.ReducedChiSquare
21
22     print 'ChiSquare is: ' + `chi`
23     print 'Reduced ChiSquare is: ' + `reduced_chi`
24
25 except Exception as e:
26     print 'Problem: ' + `e`
```

Listing 1.1: ChiSquare plugin example.