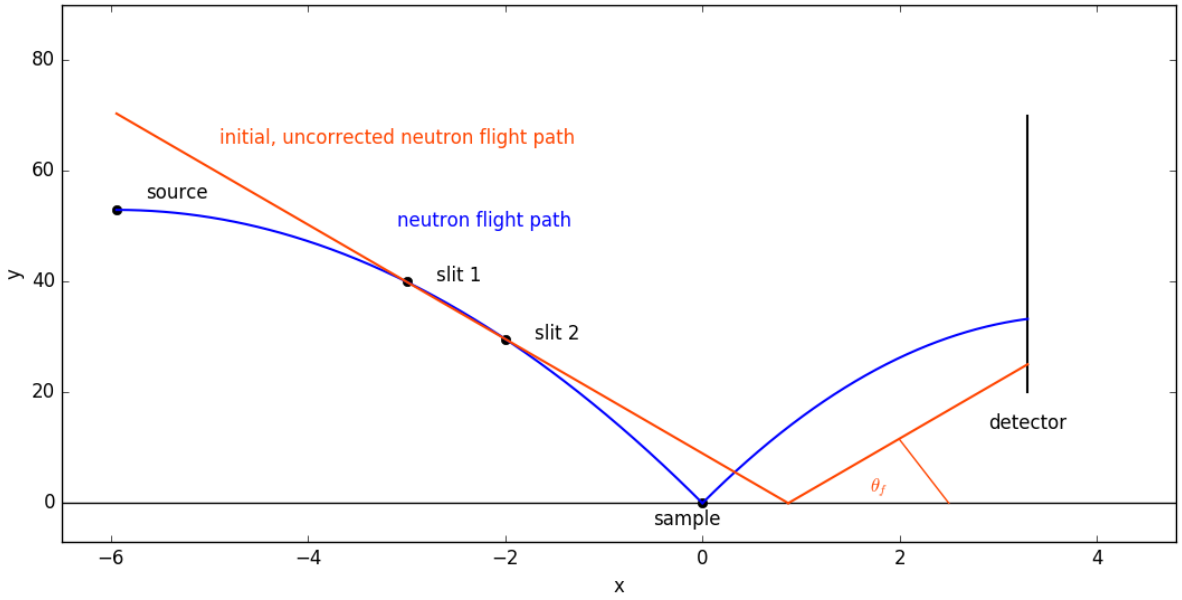
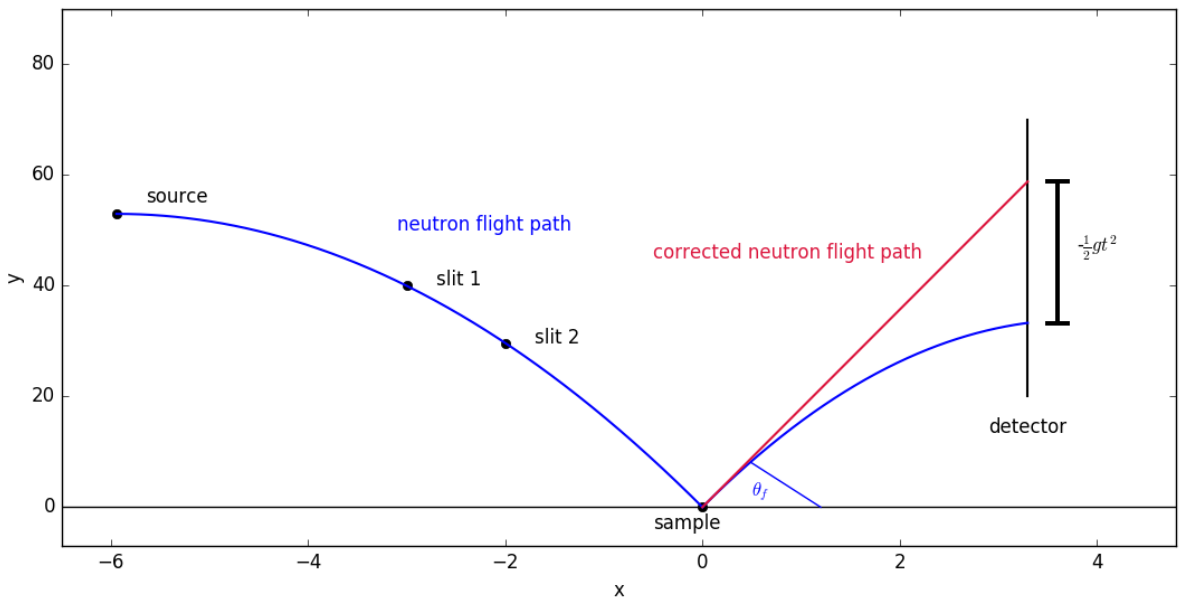
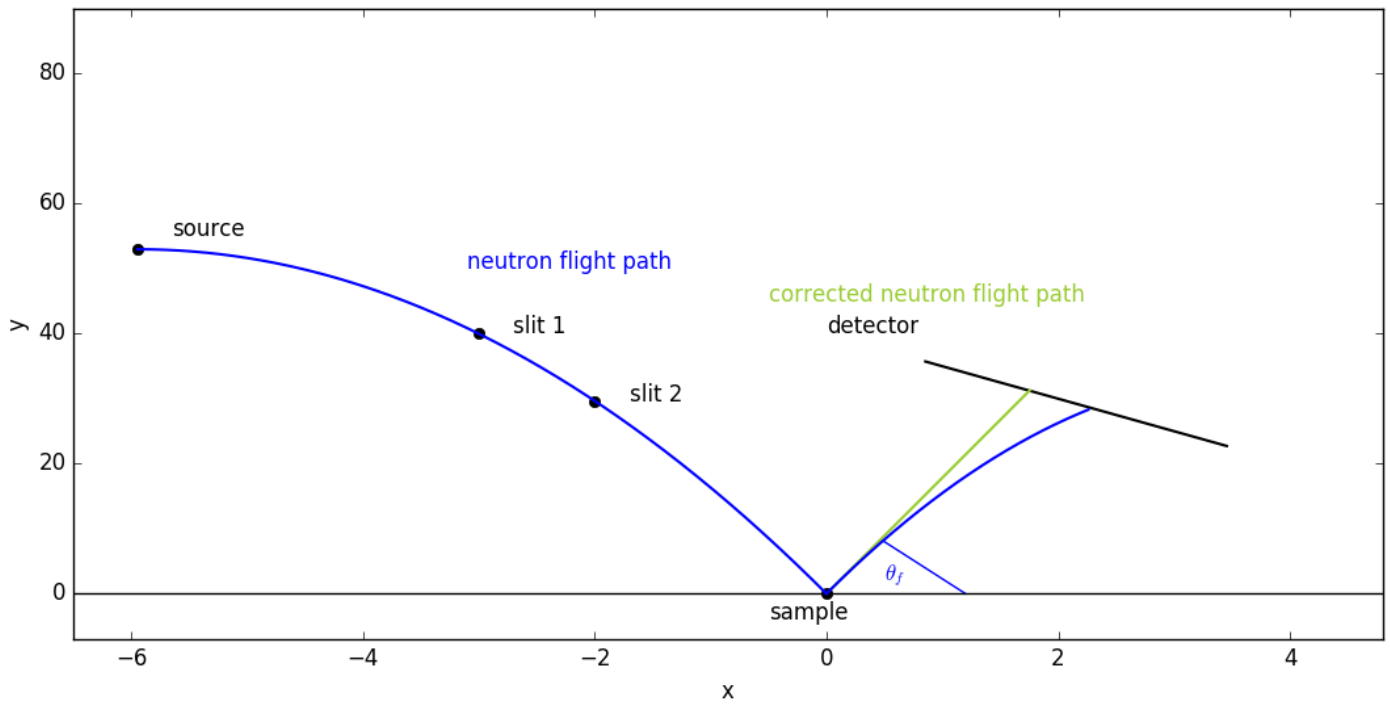
Gravity correction





Gravity correction



Requirements

- InputWorkspace, must be a histogram and must have an instrument defined
- Two slits, must be instrument components with positions in beam direction present in the IDF (instrument definition file)
- TOF x-axis

Compared to the InputWorkspace, the OutputWorkspace may have:

- Modified TOF axis description. Allowed to be unsorted and varying. Updating bin boundaries (vs bin centers for point data, since InputWorkspace is a histogram and a histogram should be returned)
- Modified number of counts per spectra and bin.

Details

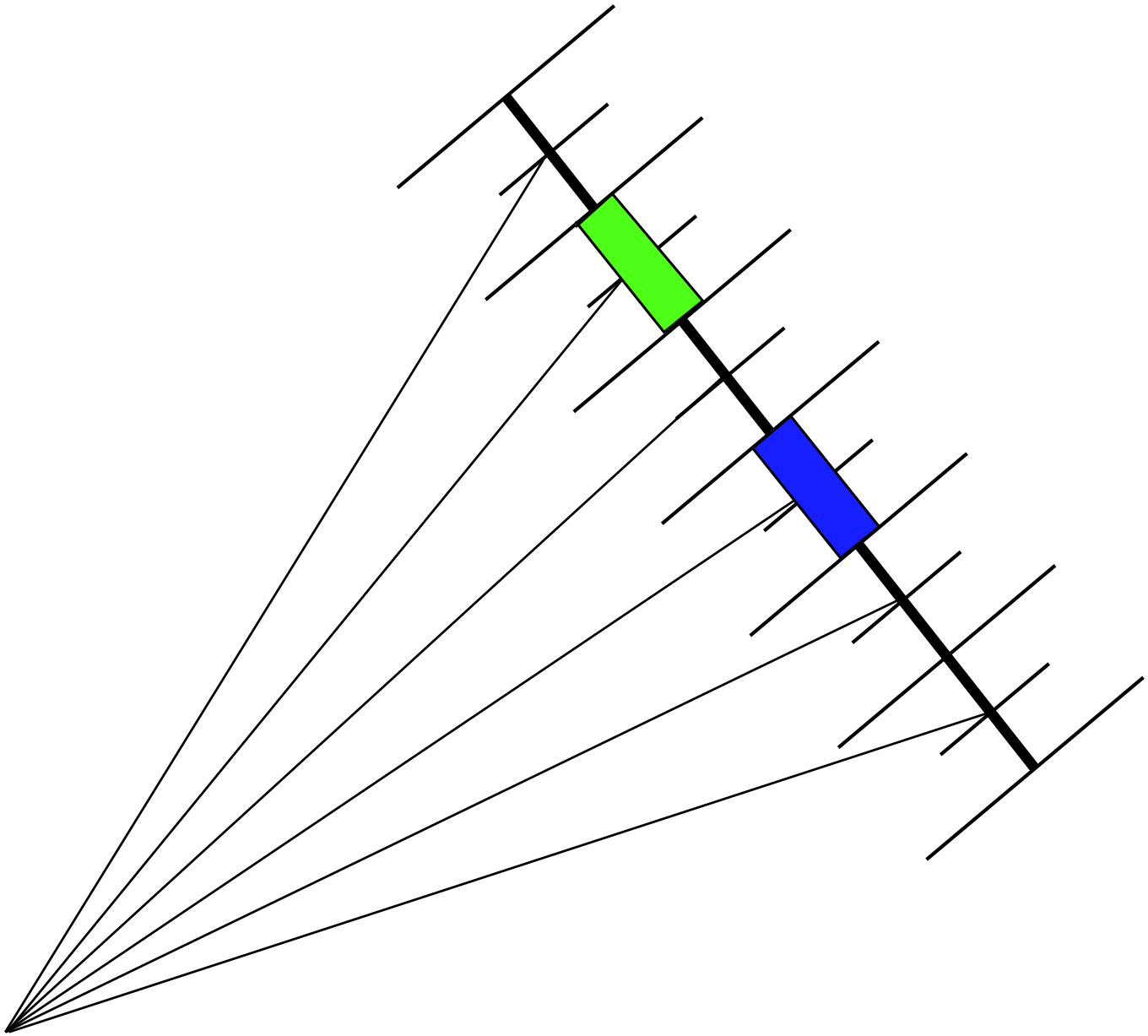
Virtual instrument definition (cloned from original instrument of the input workspace):

- Move instrument such that sample is at position x = y = z = 0 m
- If the instrument is rotated, i.e. source up and horizontal directions are not zero, back-rotate the instrument

General:

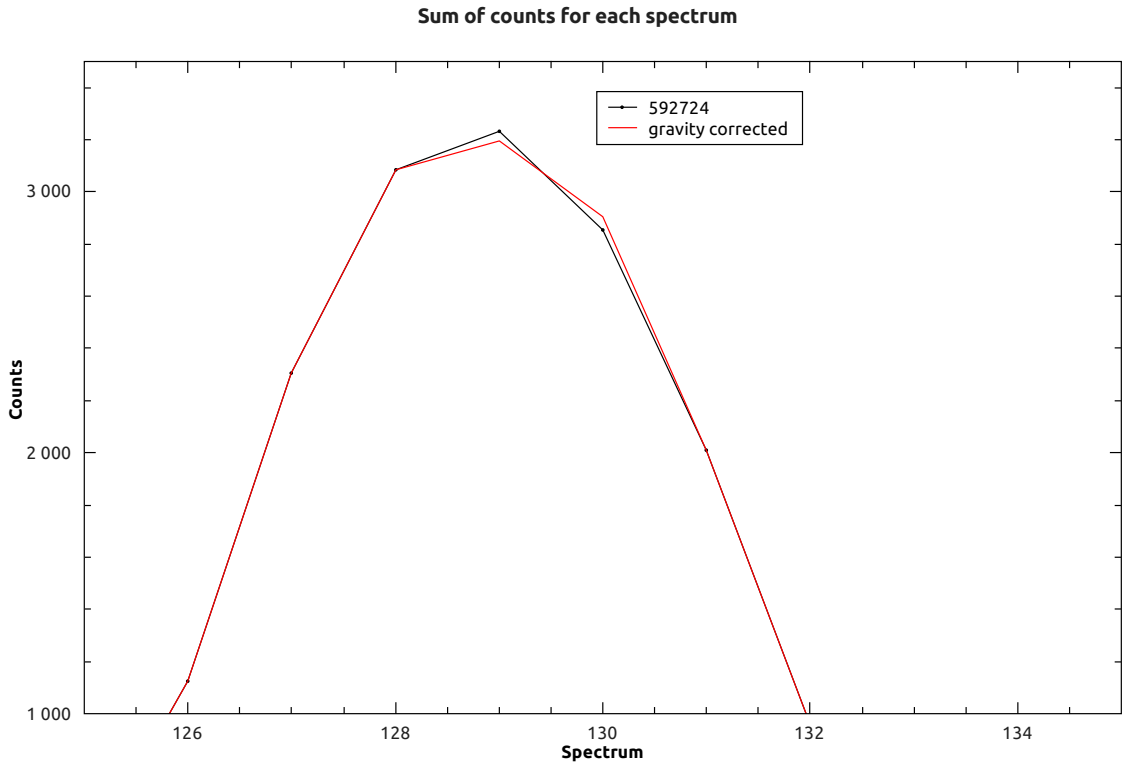
- Acces of directions and coordinates are independent of X, Y, Z definition
- Ability to compute the parabola neutron flight trajectory (e.g. for flight time computation)
- Overall computation time: aproximately 4-5 sec (for example workspace 592724). Not yet optimised, not yet parallelised

Final angle range



Update of the final angles only

LoadILLReflectometry(Filename=file5, OutputWorkspace='592724', XUnit='TimeOfFlight')
GravityCorrection(InputWorkspace='592724', OutputWorkspace='592724_gc', FirstSlitName='slit3')



Update of the final angles only

Move detector → which spectrum has empty line?

Bragg angle [°]	Spectrum number	Index
1.0	47	46
0.2	113	112
0.0	130	129
-1.0	212	211

Theta = 0.62300002574920654°

	Index	**Spectrum No**	Detector ID(s)	R	Theta	Phi	Monitor
122	121	122	122	2,8346041...	0,157740229914	-90	no
123	122	123	123	2,8346010...	0,1334847262615	-90	no
124	123	124	124	2,8345985...	0,1092291747934	-90	no
125	124	125	125	2,8345965...	0,08497358419541	-90	no
126	125	126	126	2,8345949...	0,06071796318006	-90	no
127	126	127	127	2,8345939...	0,0364623204356	-90	no
128	127	128	128	2,8345934...	0,01220666459542	-90	no
129	128	129	129	2,8345934...	0,01204899554243	90	no
130	129	130	130	2,8345939...	0,03630465131434	90	no
131	130	131	131	2,8345949...	0,06056029408442	90	no
132	131	132	132	2,8345965...	0,08481591509741	90	no

Debug information

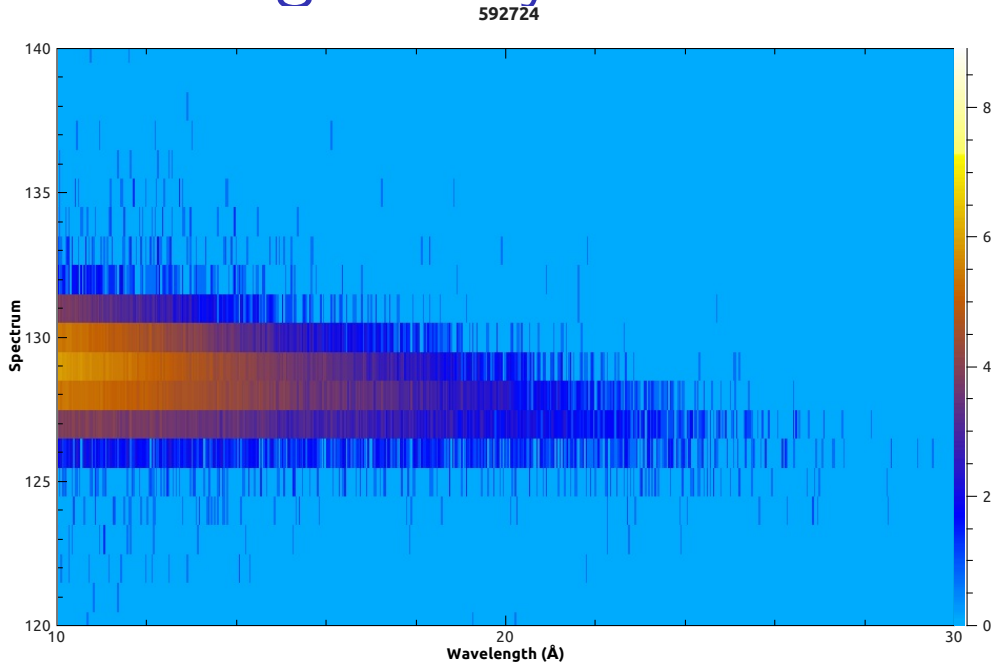
Single spectrum at index 128

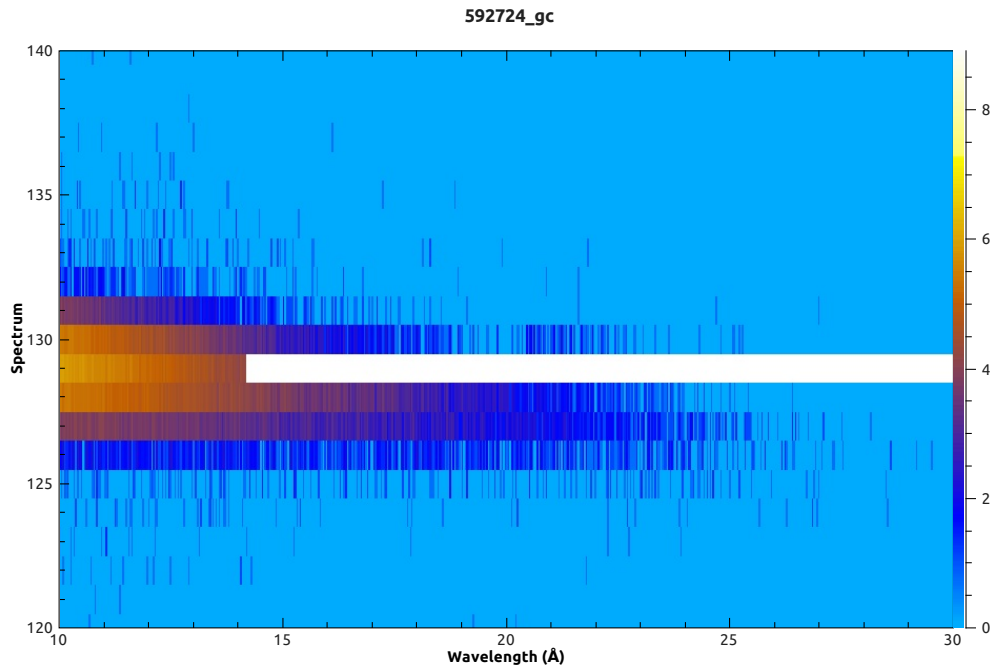
Bin boundary index	Final angle corrected [rad]
873	0.0003369968615934378 7
874	0.0003382910006197177 7
875	0.0003395864271278538 2
886	0.0003539218421313231 6
913	0.0003897906055698043 1
963	0.0004588757880651844 8

Single bin at bin boundary index 873, wavelength 26.9168 Å

Index	Final angle corrected [rad]	Final angle uncorrected [rad]
127	-0.0006263751867018116 5	-0.0001065232439383777 3
128	0.0003369968615934378 7	0.0001051473218867432 8
129	0.0002749605738551496 3	0.0003168178496118729 3
130	0.0004185266650828816 3	0.0005284882638746048 1
131	0.0004302521471464241 7	0.0007401584882708983 1
132	0.0003247467620563451 1	0.0009518284472128880 8

Update of the final angles only





Update of the final angles only