Multiplexing at BEER-
First results from V20

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Outline

- Approach to Modulation technique (from BEER) by the chopper system at V20

- Comparison: measurement/simulation

- Conclusions/Work to do

Approach to BEER by V20: Experiment description

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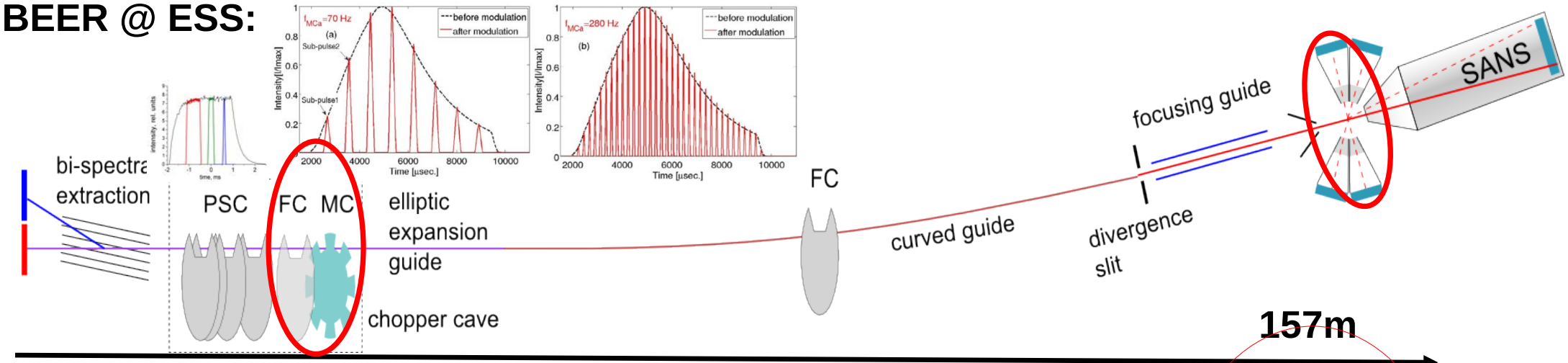
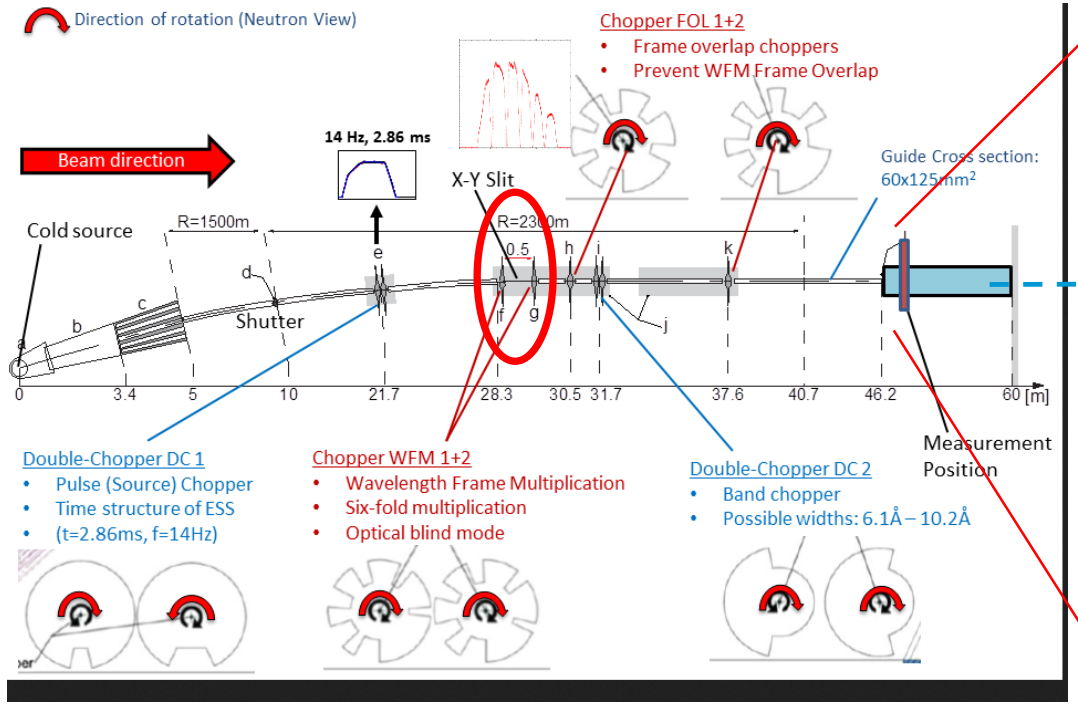
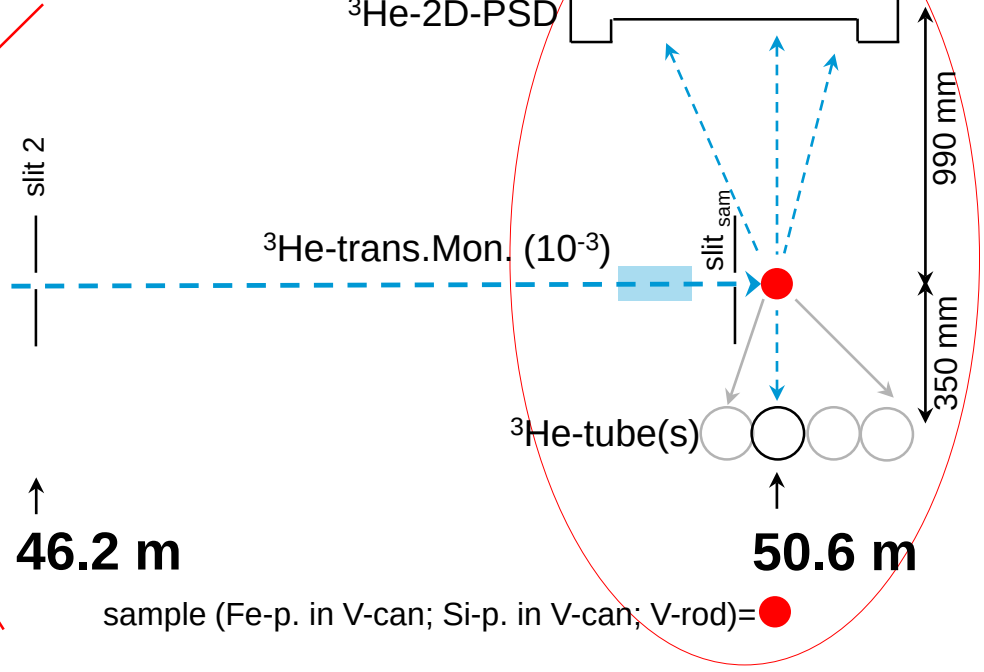
BEER @ ESS:



V20 @ HZB:



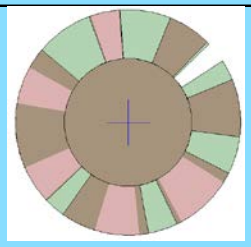
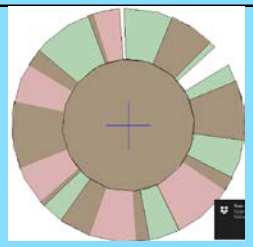
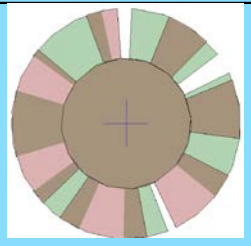
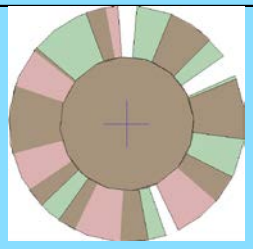
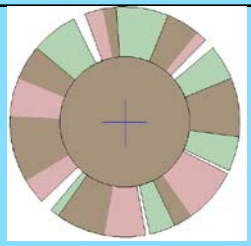
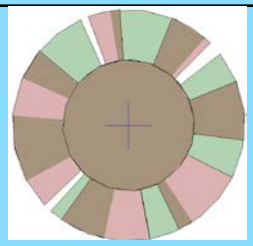
Sample space @ V20:



WFM-choppers (V20) vs. Mod.-chopper (BEER)

WFM-choppers @ V20:

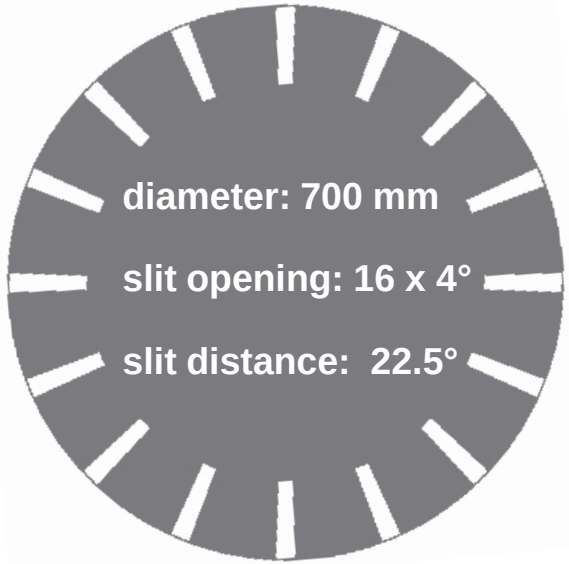
WFM's at ~6.7 m/det. 51 m

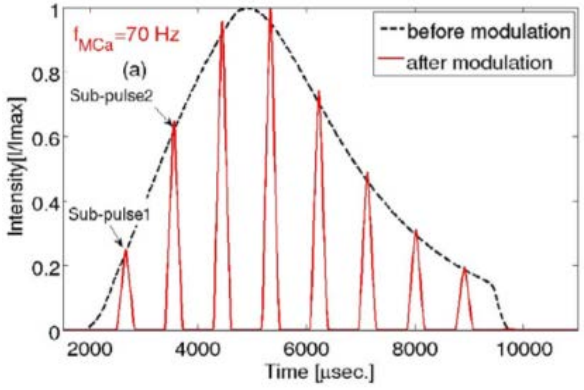
WFM1-Phase[°]	WFM2-Phase[°]	Coverage pattern of both WFM discs	Coverage pattern of both WFM discs after 2° delay of WFM1 to WFM2
230	58		
230	51		
230	65		

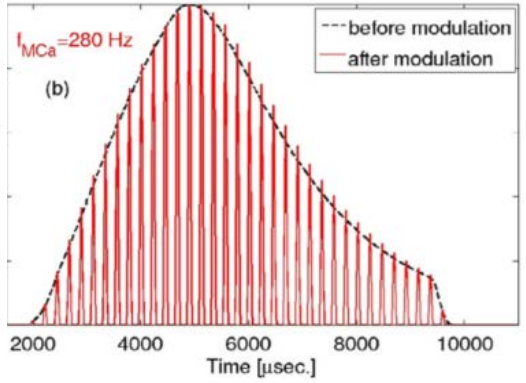
- .dr.)

Modulation chopper @ BEER:

MC at ~8.95m/det. 157 m





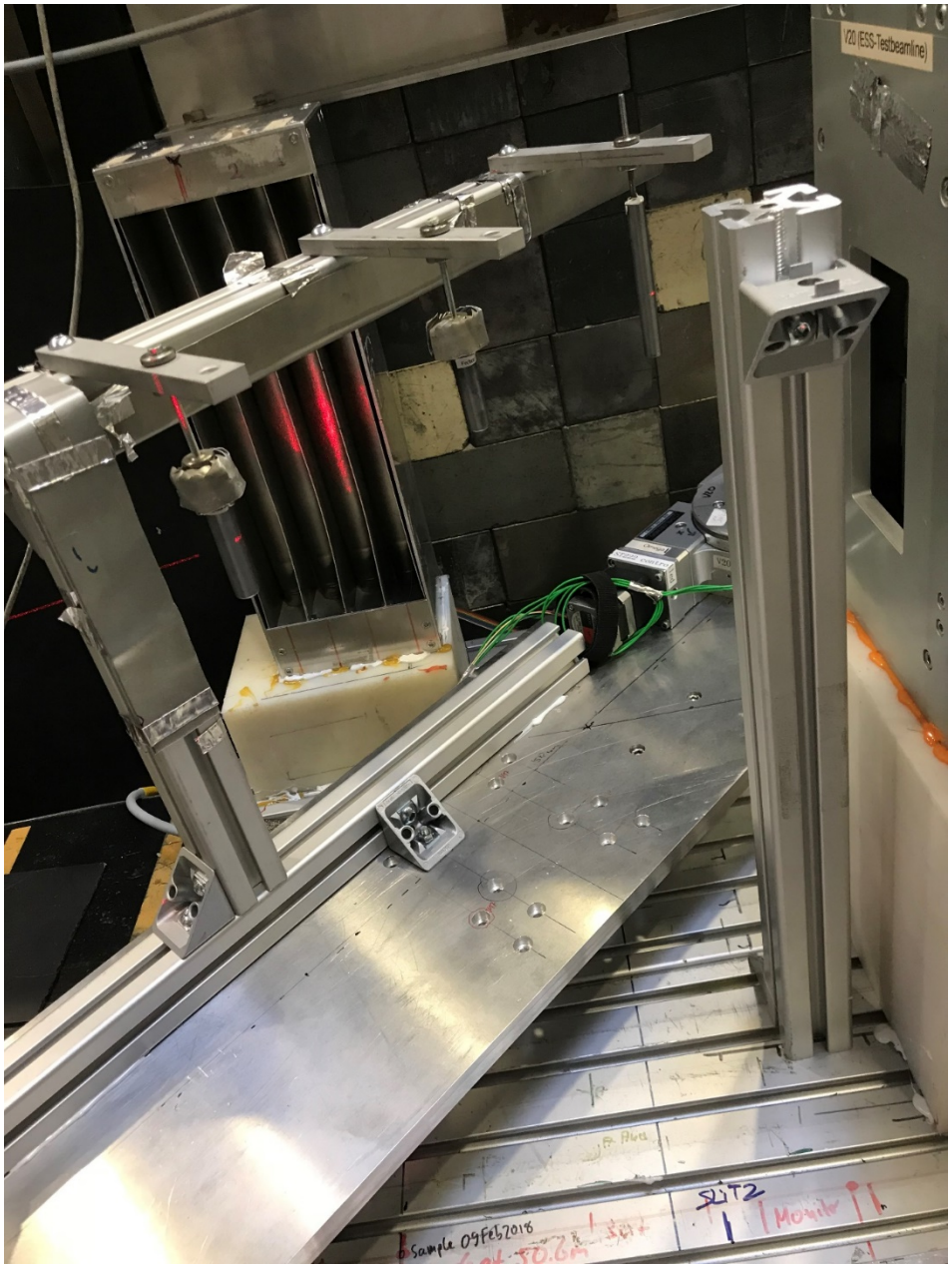


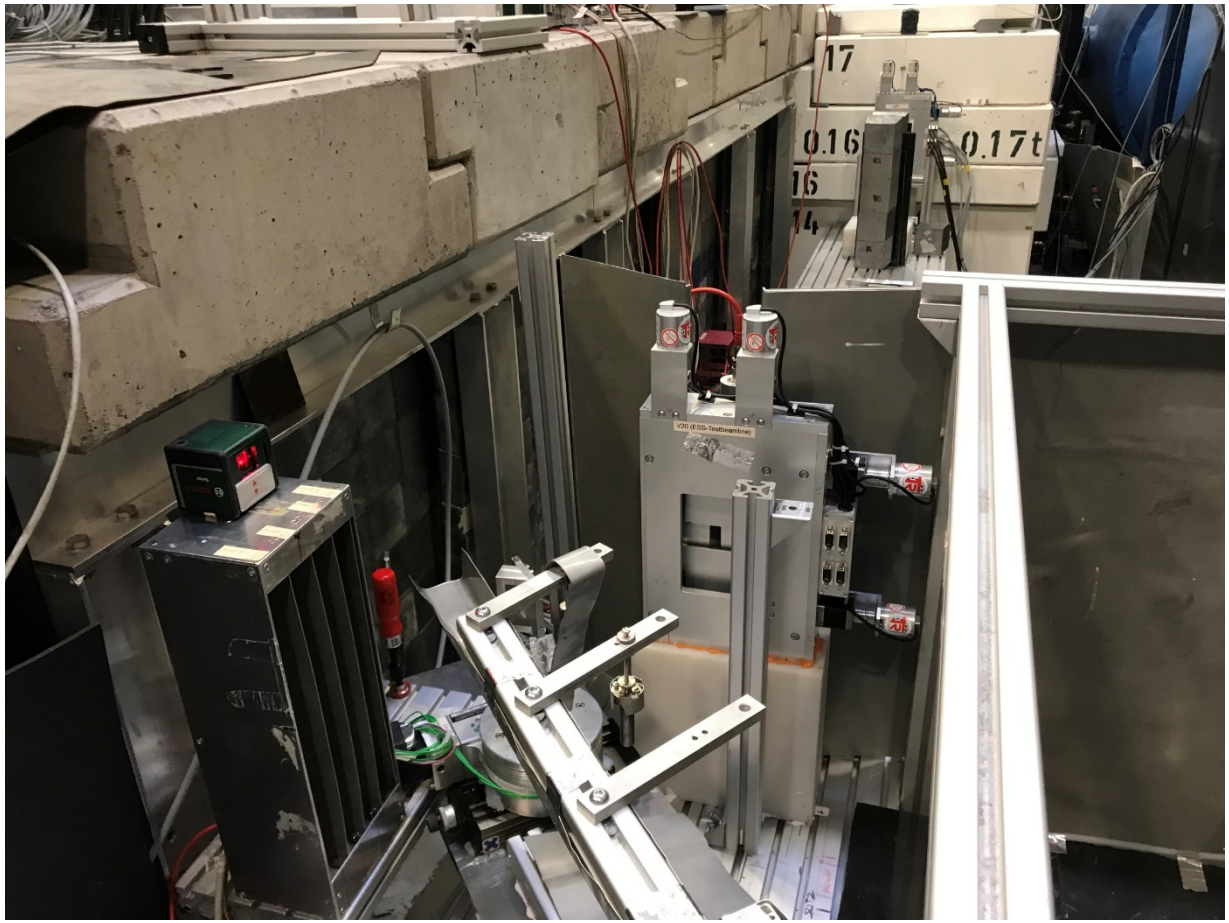
Idea: create a part of MC-disc as close as possible by fixing a rel.phase of WFM1 disc to WFM2 disc for „proper shape coverage" (many narrow,e.d. slits)!

Day three: Ready!
(with shielding, sample changer)

Day four:

First Upgrade: *Additional DETECTOR @ 90°*



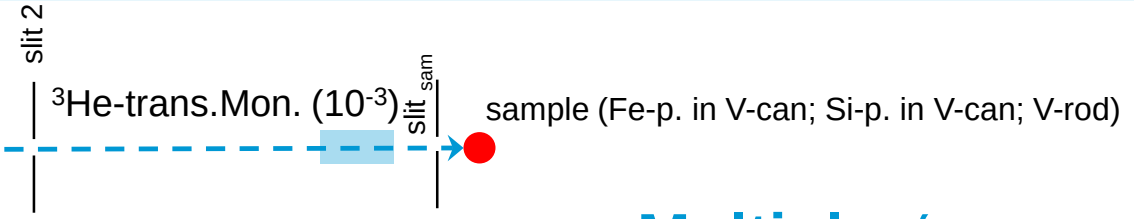


Thank you, Robin! :-D

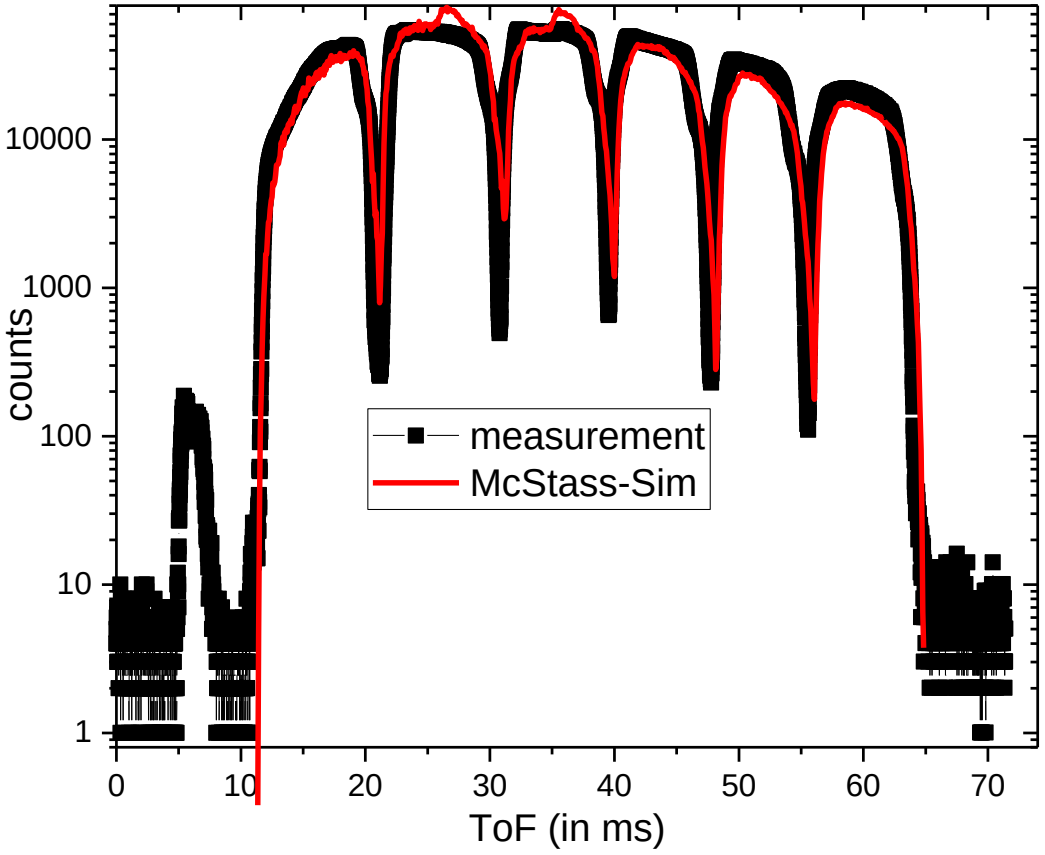
Comparison: measurement/simulation

- McStass Code for V20 ready for use (Ala'a Al-Falahat, J. Fenske & R. Woracek…….)

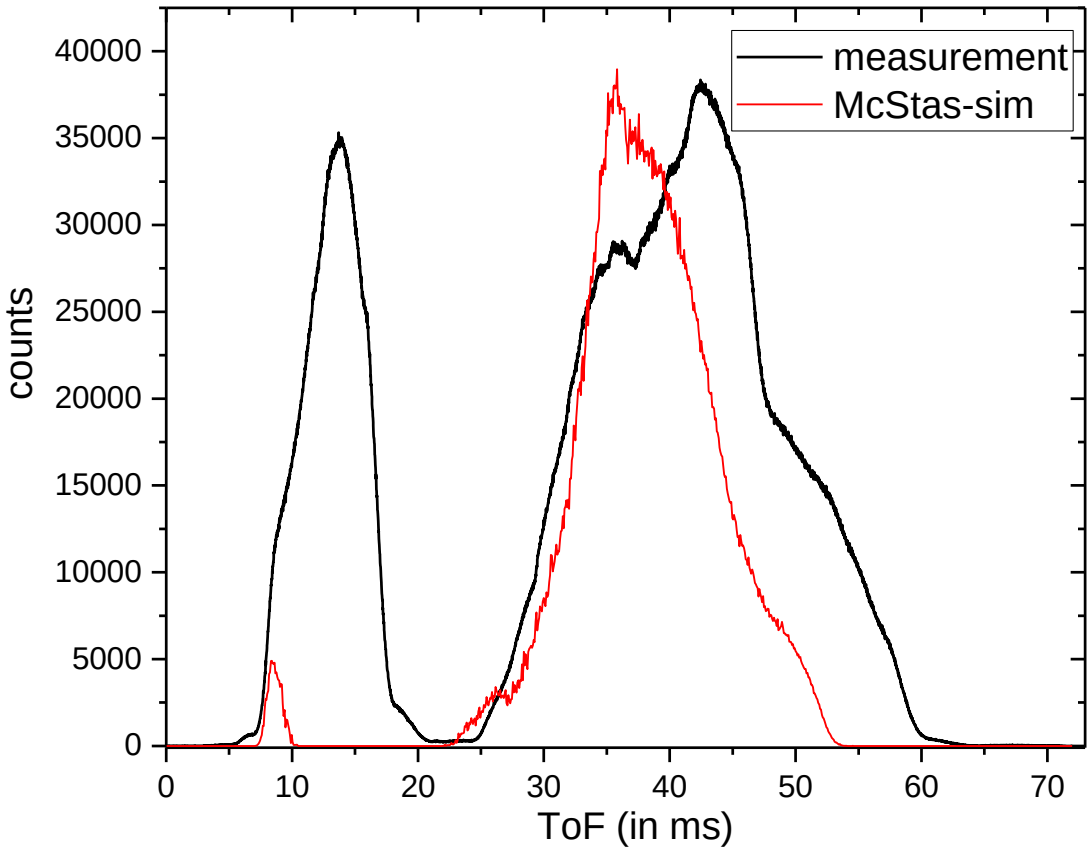
^{3}He-trans. Monitor ***BEFORE*** sample @ V20



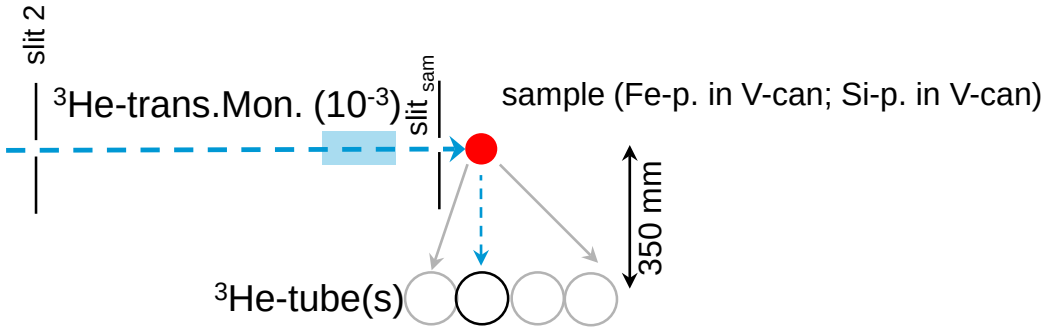
WFM-mode:
measured/simulated:



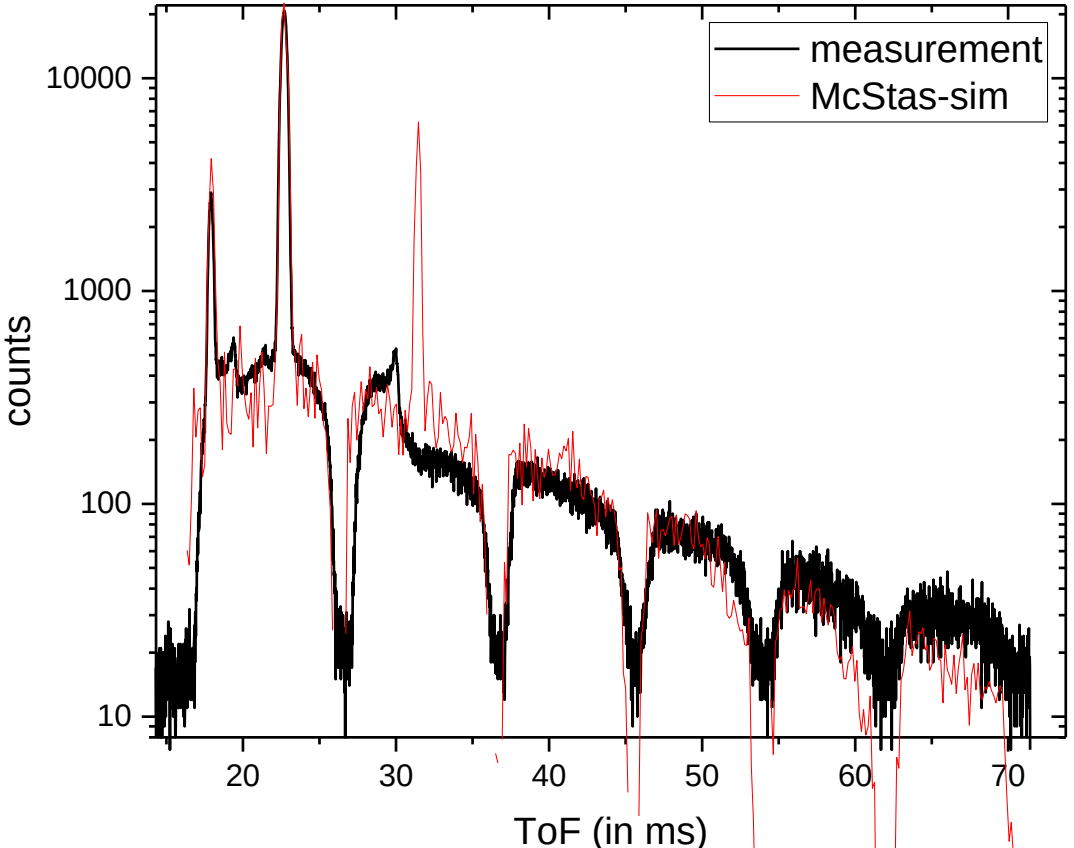
Multiplex'g:
measured/simulated:



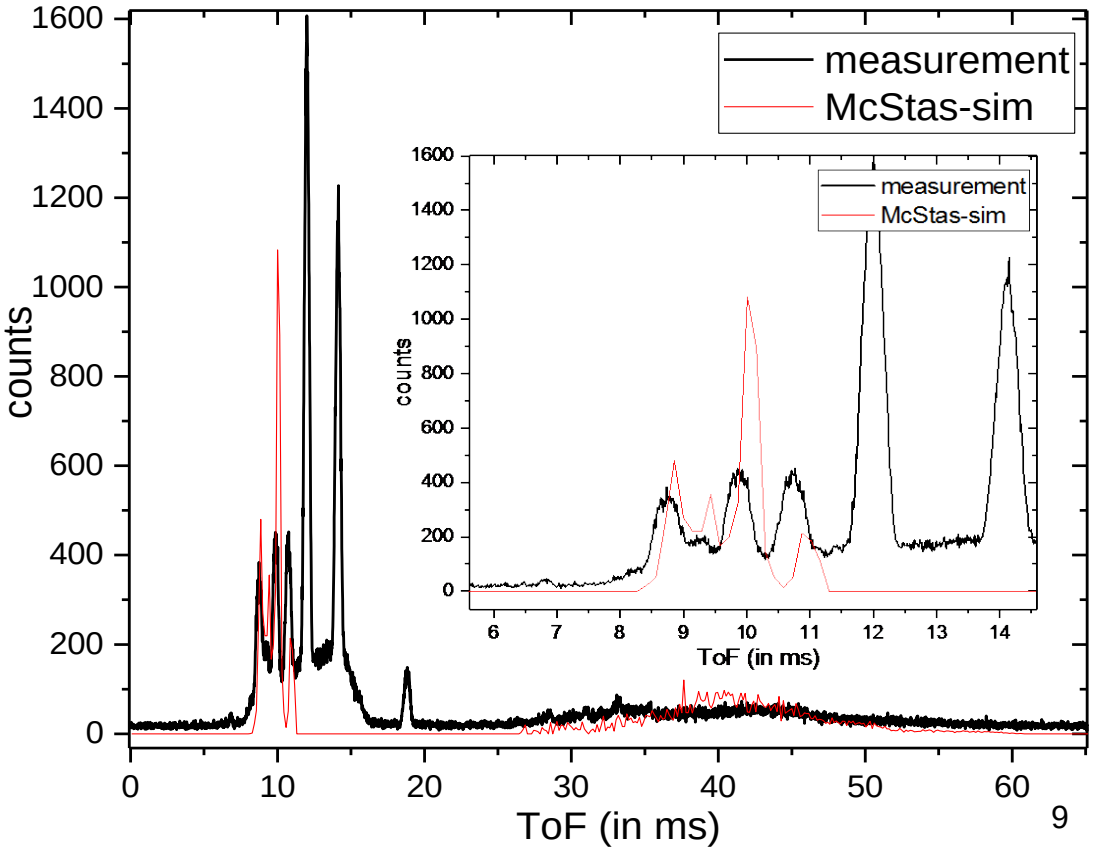
Diffraction on Fe-powder @ V20 @ ^{3}He-tube



WFM-mode:
measured/simulated:



Multiplex'g:
measured/simulated:



Multiplex'g settings for short burst @V20
Diffraction on Fe-powder

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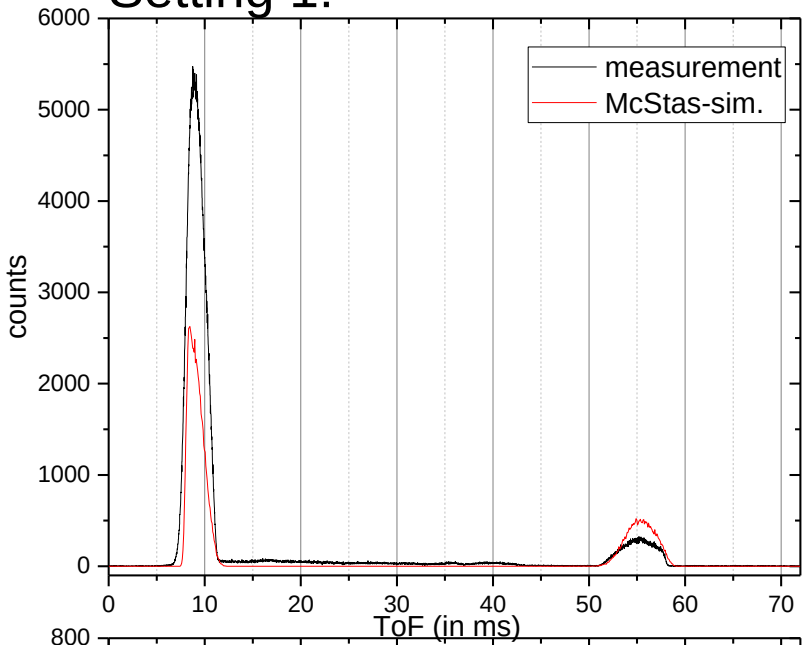
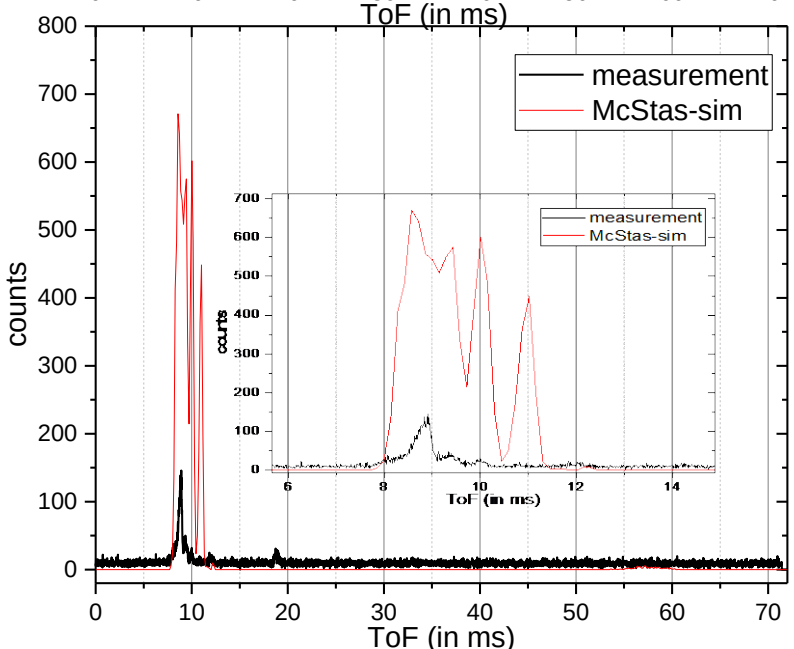
Setting 1:

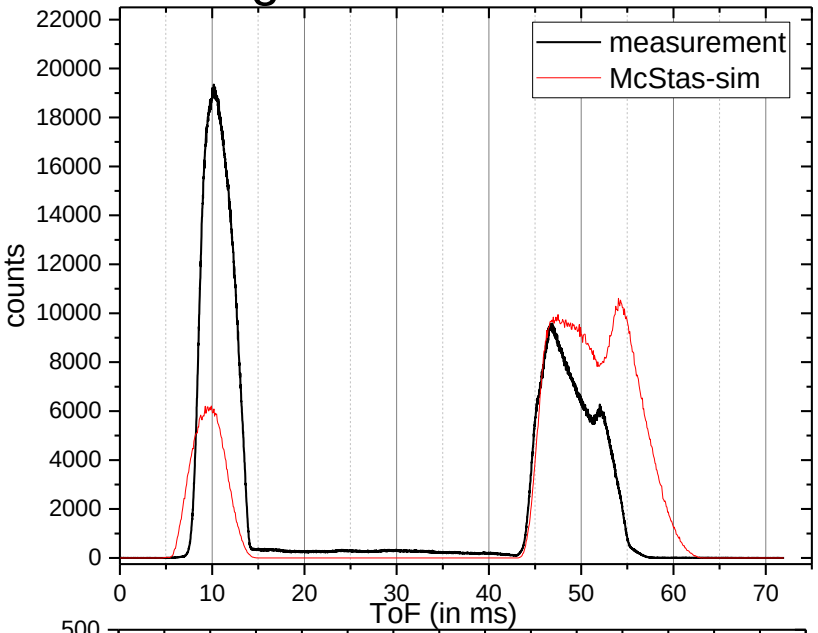


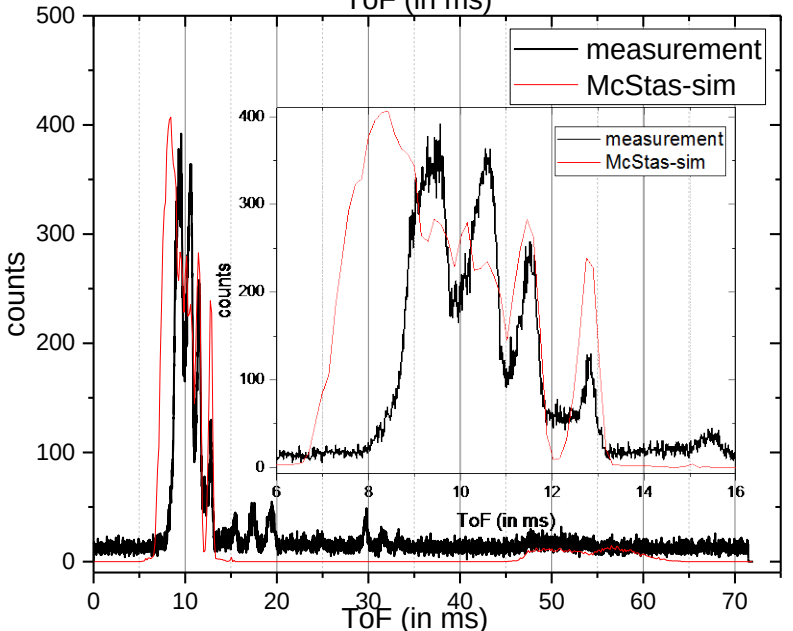
BEFORE sample
(Monitor)



AFTER sample
(tube detector)

Setting 2:





Diffraction on Fe-powder @V20 in PSD exp/sim

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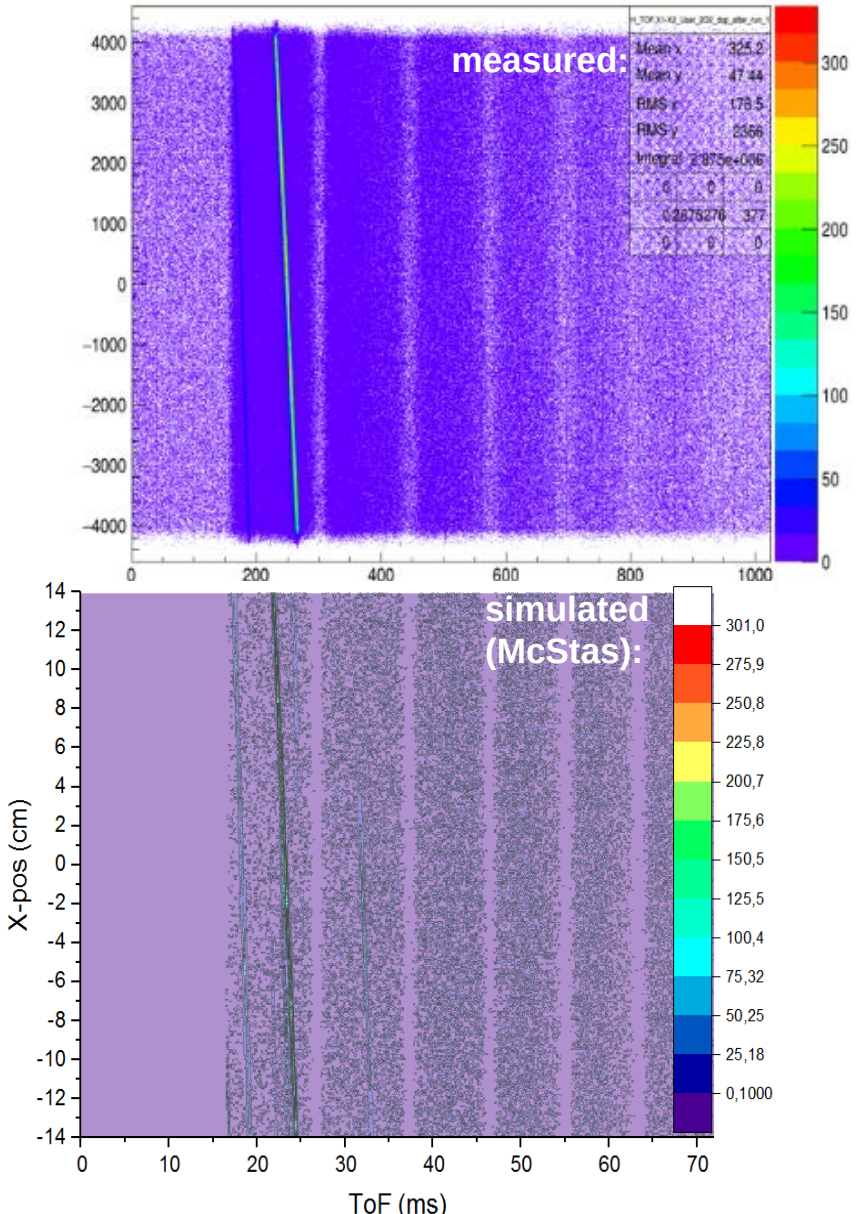
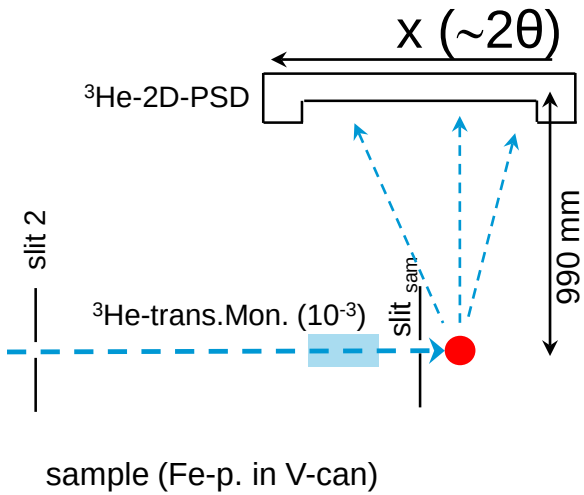
WFM-mode:

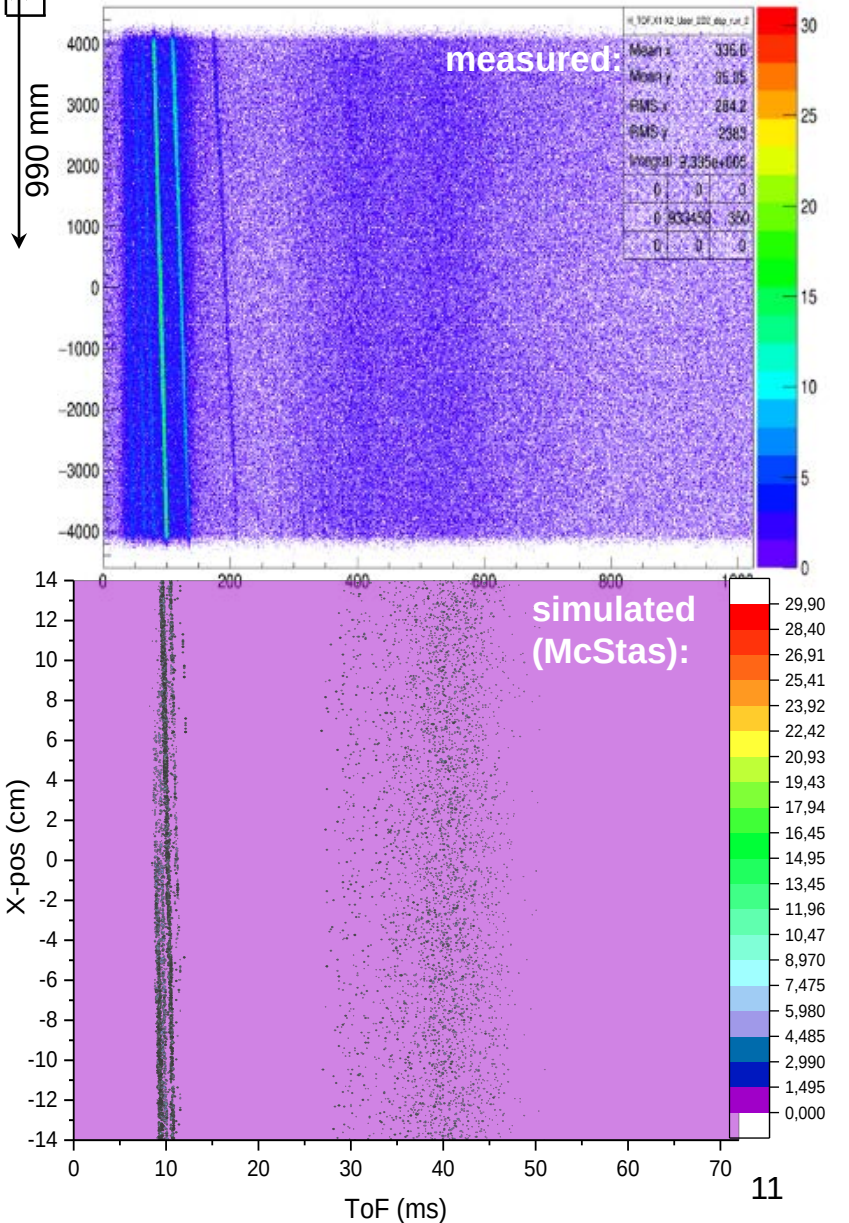
H_TOF,X1-X2_User_2D2_dsp_after_run_1



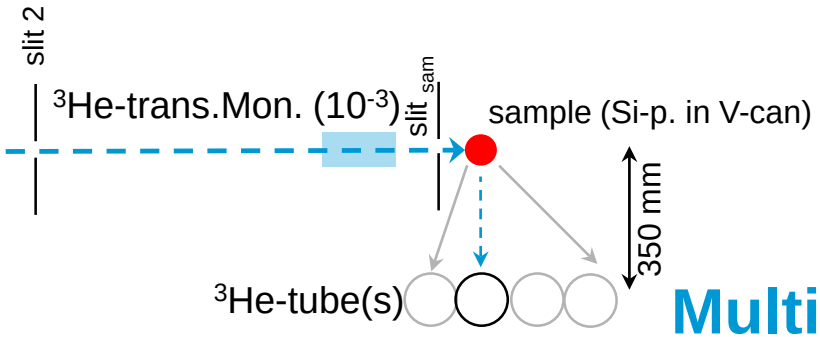


Multiplex'g:

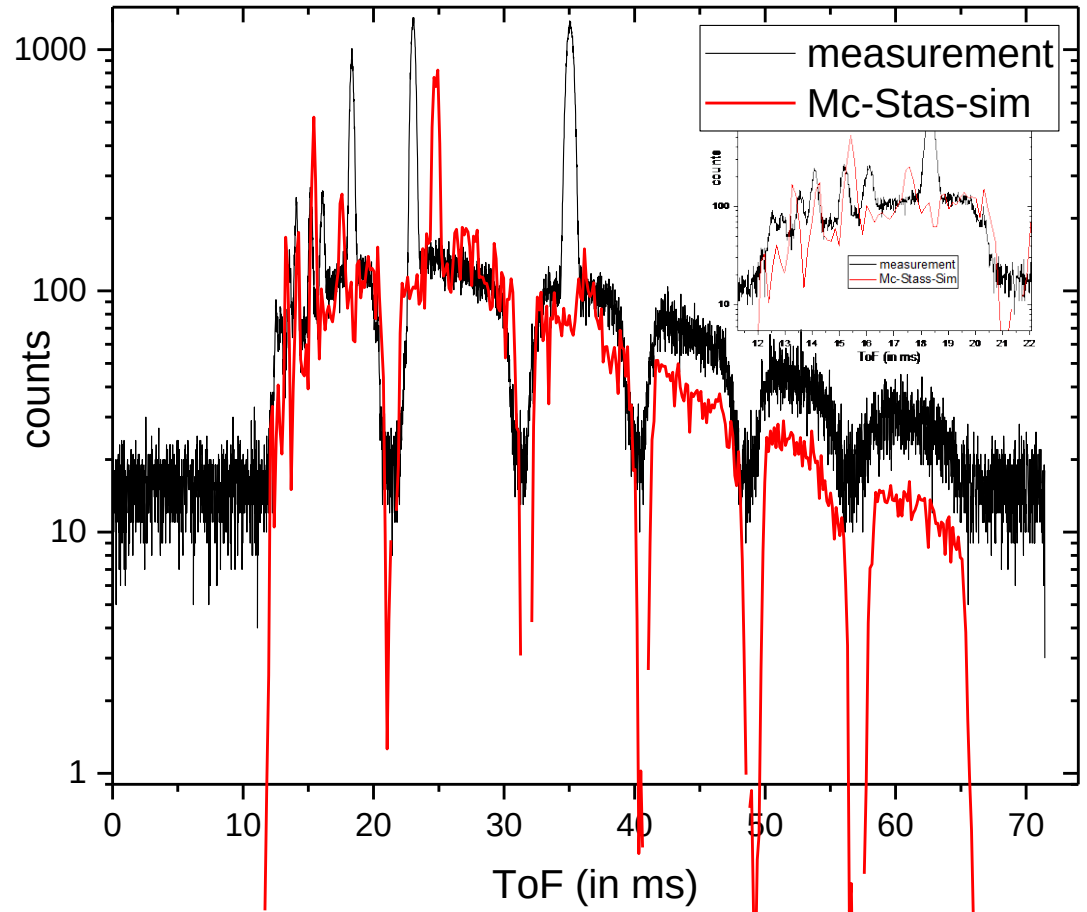
H_TOF,X1-X2_User_2D2_dsp_run_2



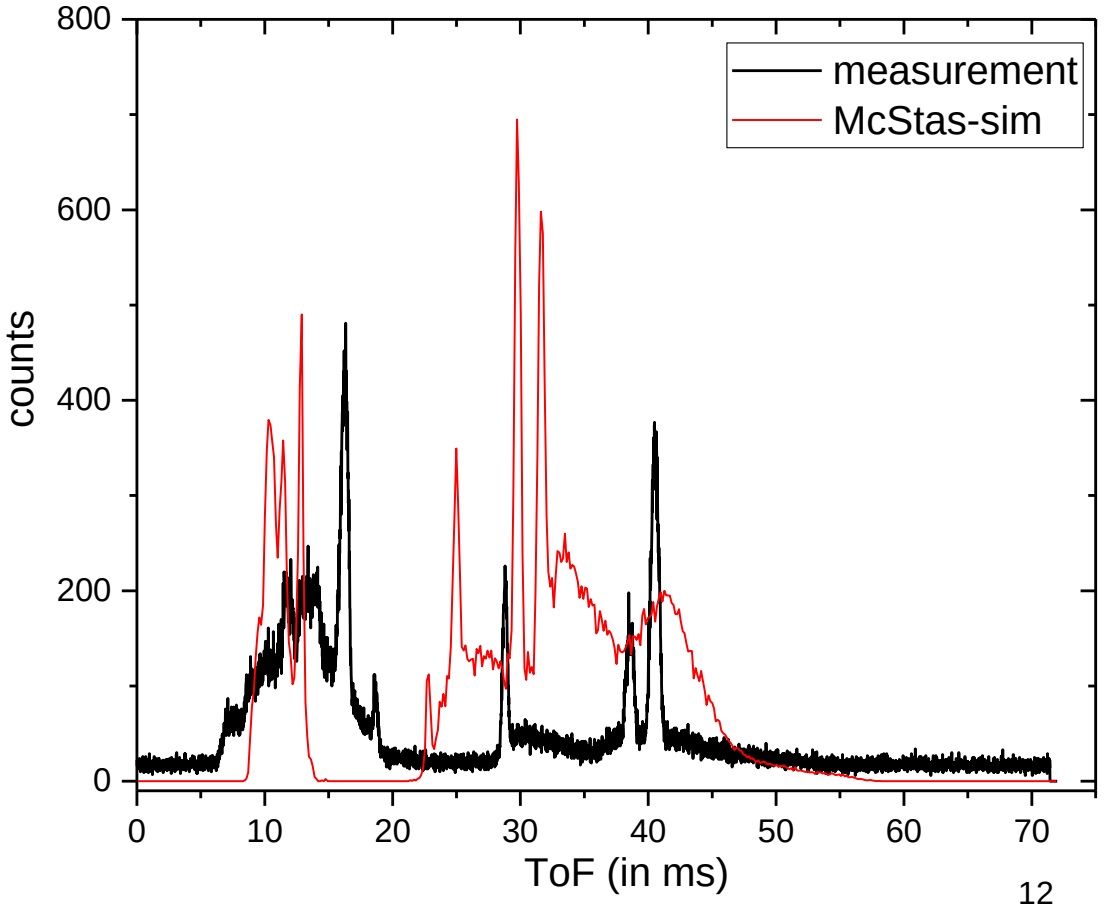
Diffraction on Si-powder @ V20 ^{3}He-tube



WFM-mode: measured/simulated:



Multiplex'g: measured/simulated:



Diffraction on Si-powder @V20 @ PSD

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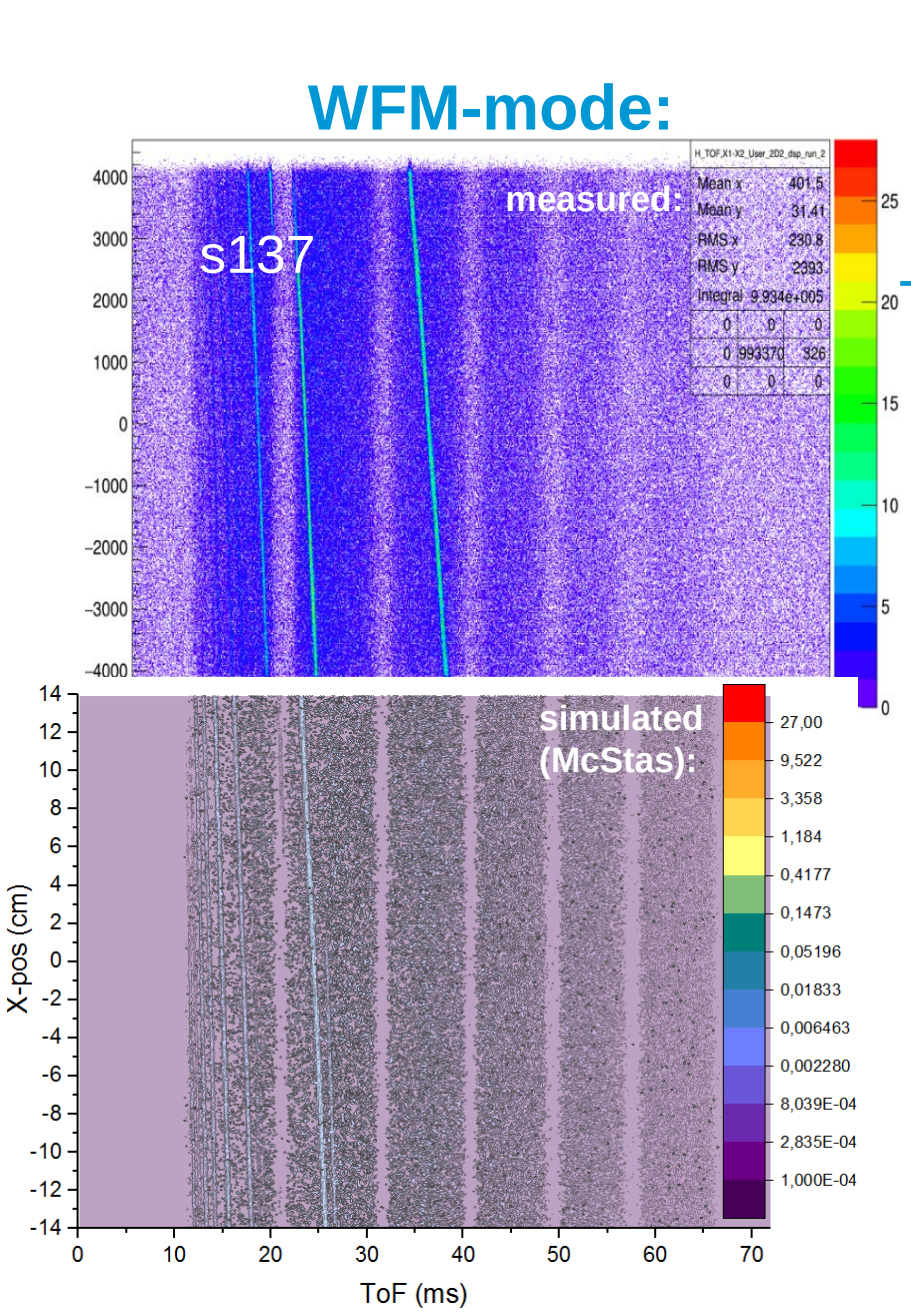
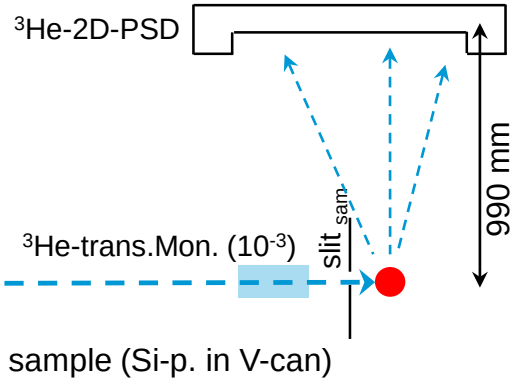
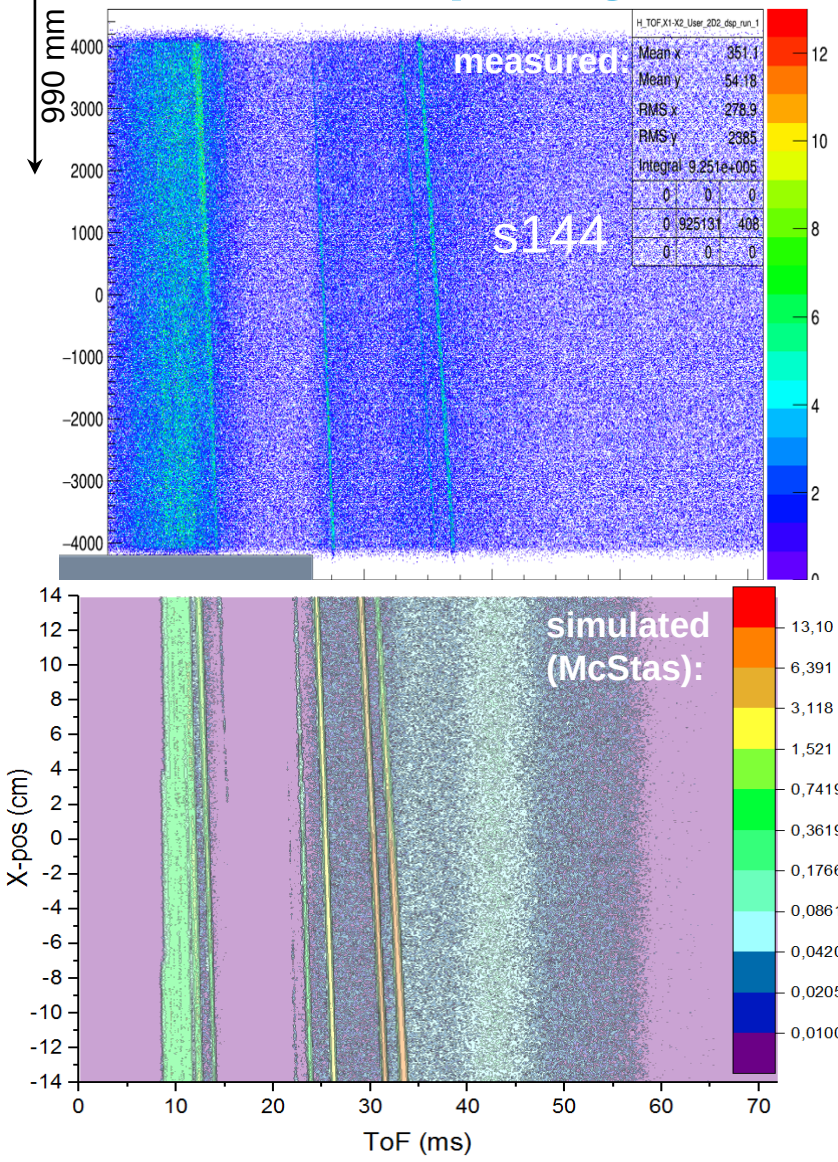
WFM-mode:





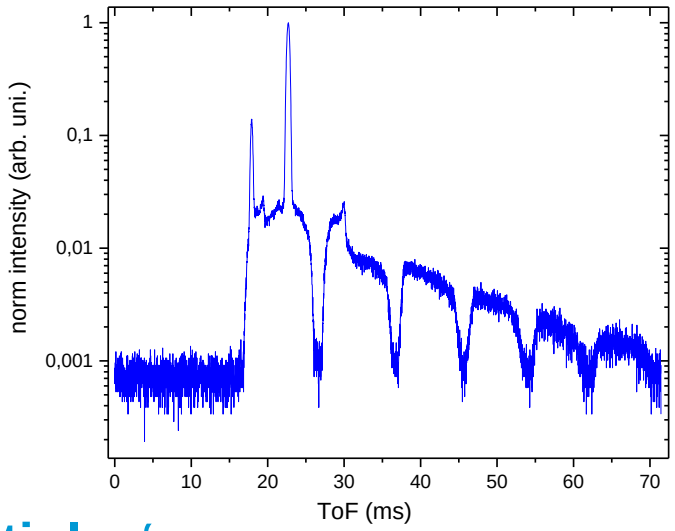
Multiplex'g:



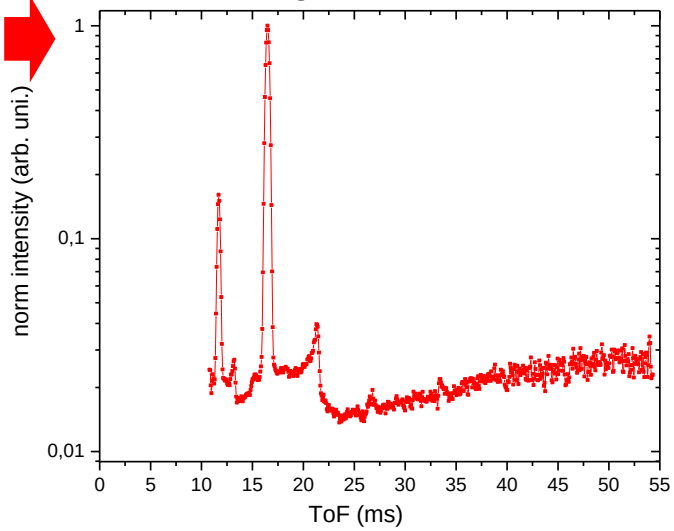
Data processing, reduction

WFM:

Before stiching:



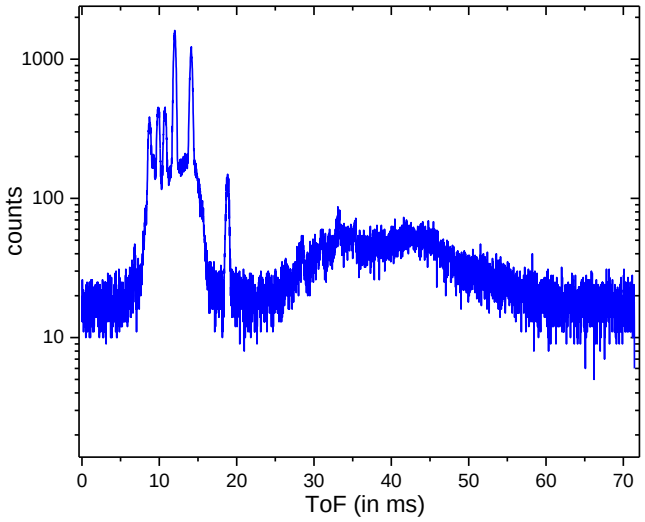
After Stiching:



Bragg-scan:
I(2Θ) or I(q) or I(d)
=> MAUD,
FullProf, …..

Multiplex'g @ BEER:

Before Summation:



After Summation:

Summation of intensity from sub-lines:

Routine as demonstrate by J. Šaroun talk before

Bragg-scan:
I(2Θ) or I(q) or I(d)
=> MAUD,
FullProf, …..

Conclusions/Work to do

-Improvement of chopper phases (timing synchronization) in simulation and exp.

-application of summation code on current V20-“multiplexing“-data (with DMSC)

-integration process of „summation“ to Mantide (by DMSC)