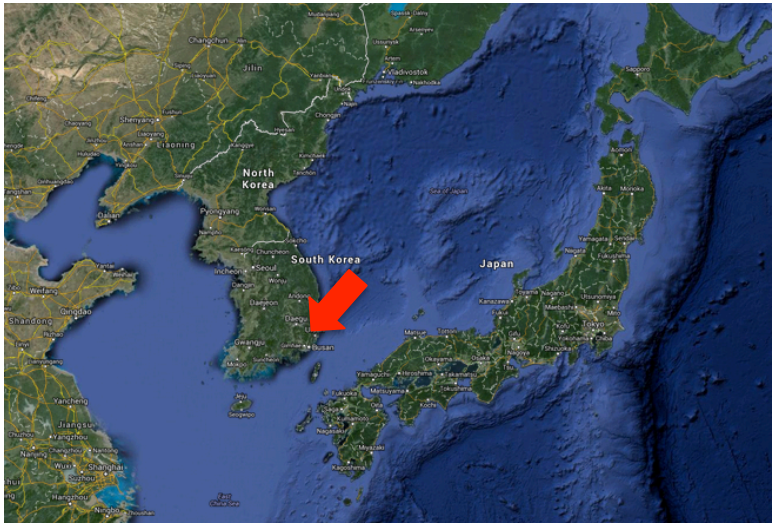
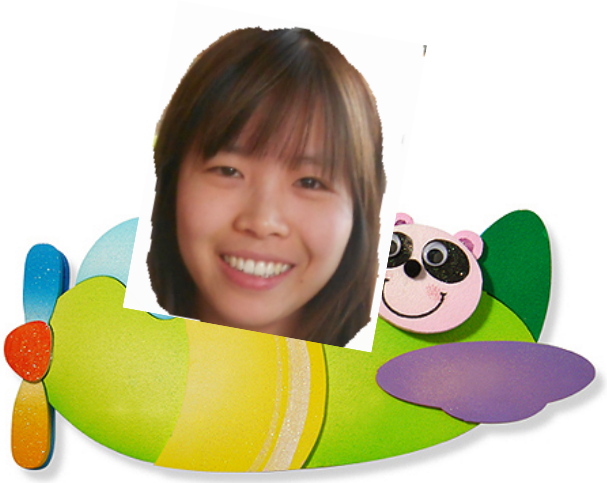
Sanghwa Park





- Seoul National University (2010~)
  - Kiyoshi Tanida's Group (Inseok, Minjung)
- Joined PHENIX in 2011 (Run11~)
- IPA (International Program Associate) student of RIKEN (2012~)

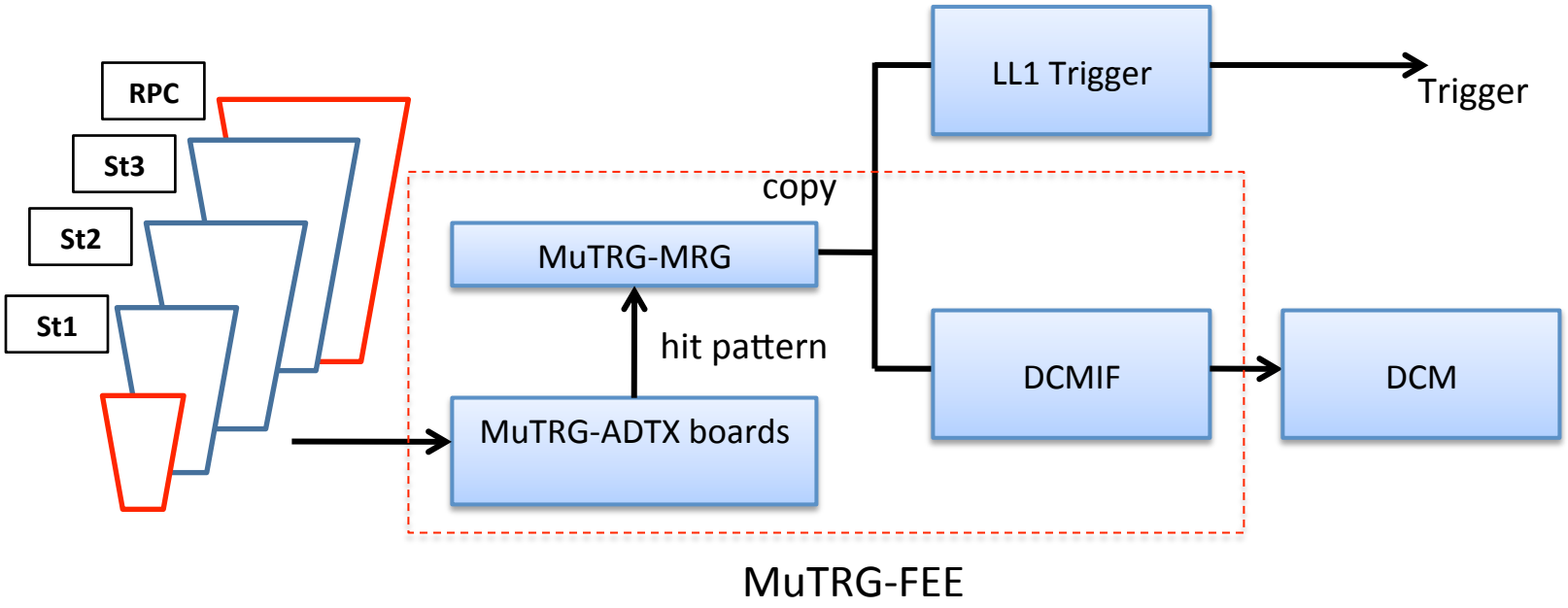
Became a PHENIXian...

- Forward Arm Upgrade (MuTr, MuTrig)
- PHENIX Local Polarimetry (Run12, Run13)
- W→mu analysis (physics analysis)

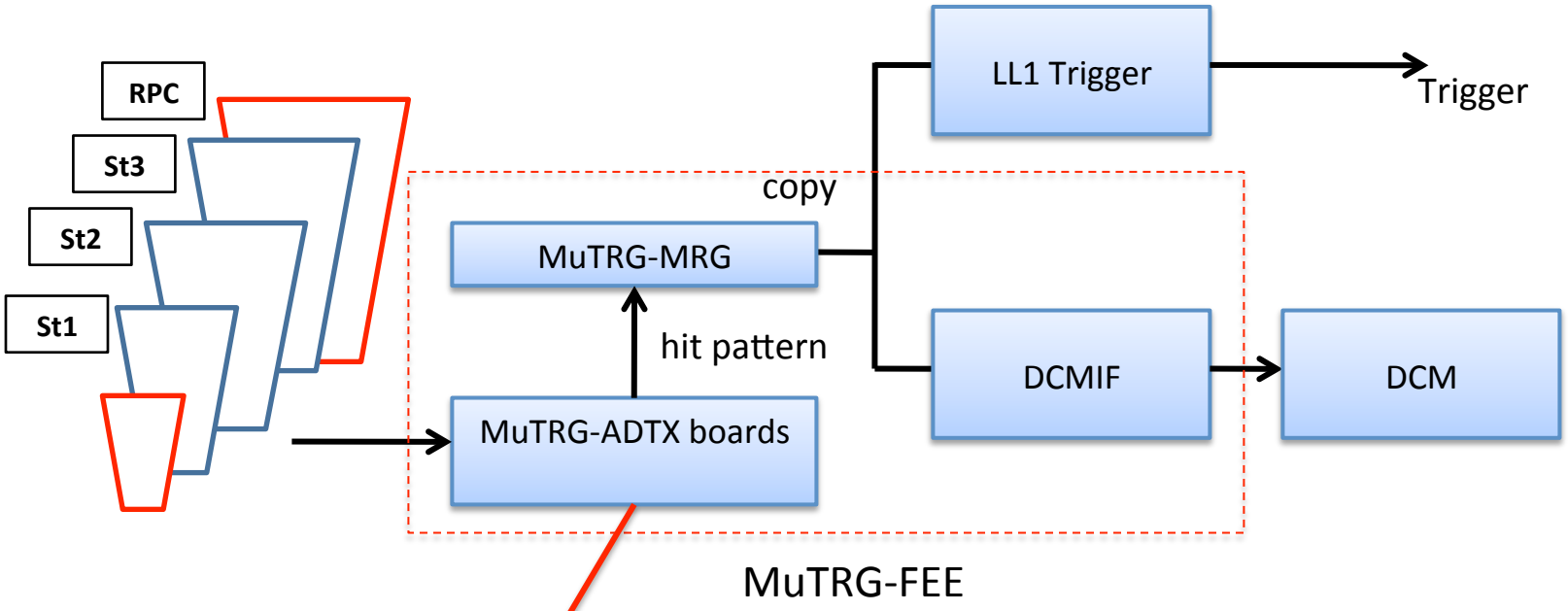
PHENIX MuTRG-FEE

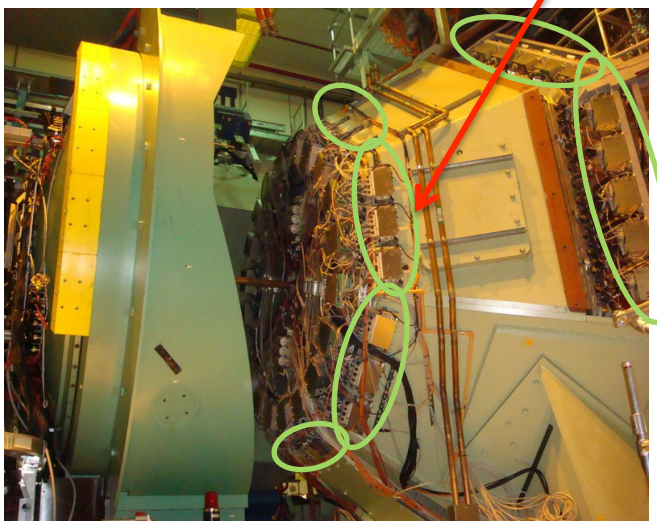
- Joined MuTRIG group after the installation completed.
- Worked on improvement of trigger performance and maintenance. (optimizing trigger condition during the experiment, online monitoring, etc..)
- MuTRG-FEE database

MuTRG-FEE


RPC
St3
St2
St1
LL1 Trigger
Trigger
copy
MuTRG-MRG
hit pattern
MuTRG-ADTX boards
DCMIF
DCM
MuTRG-FEE

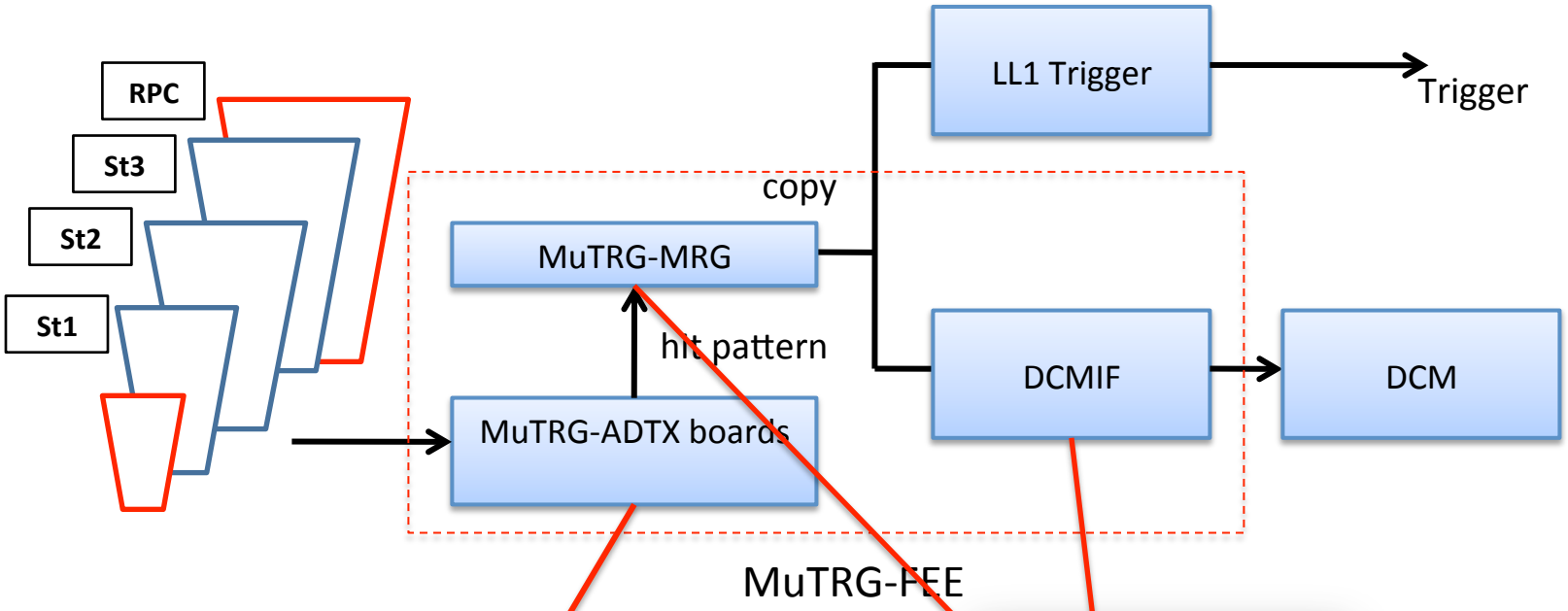
MuTRG-FEE

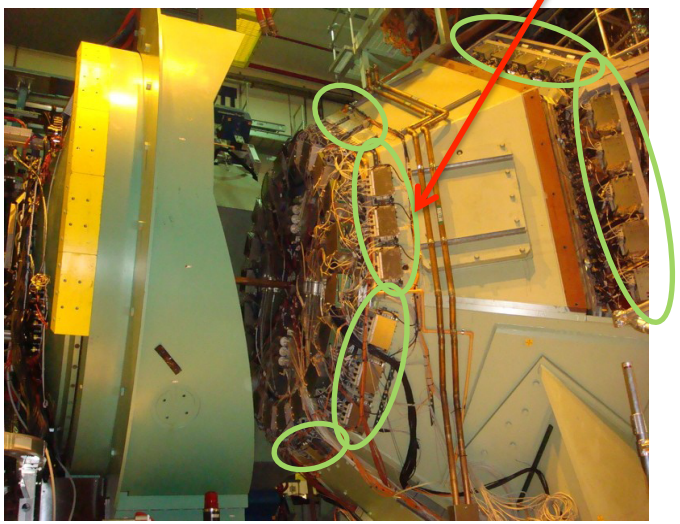




In IR

MuTRG-FEE





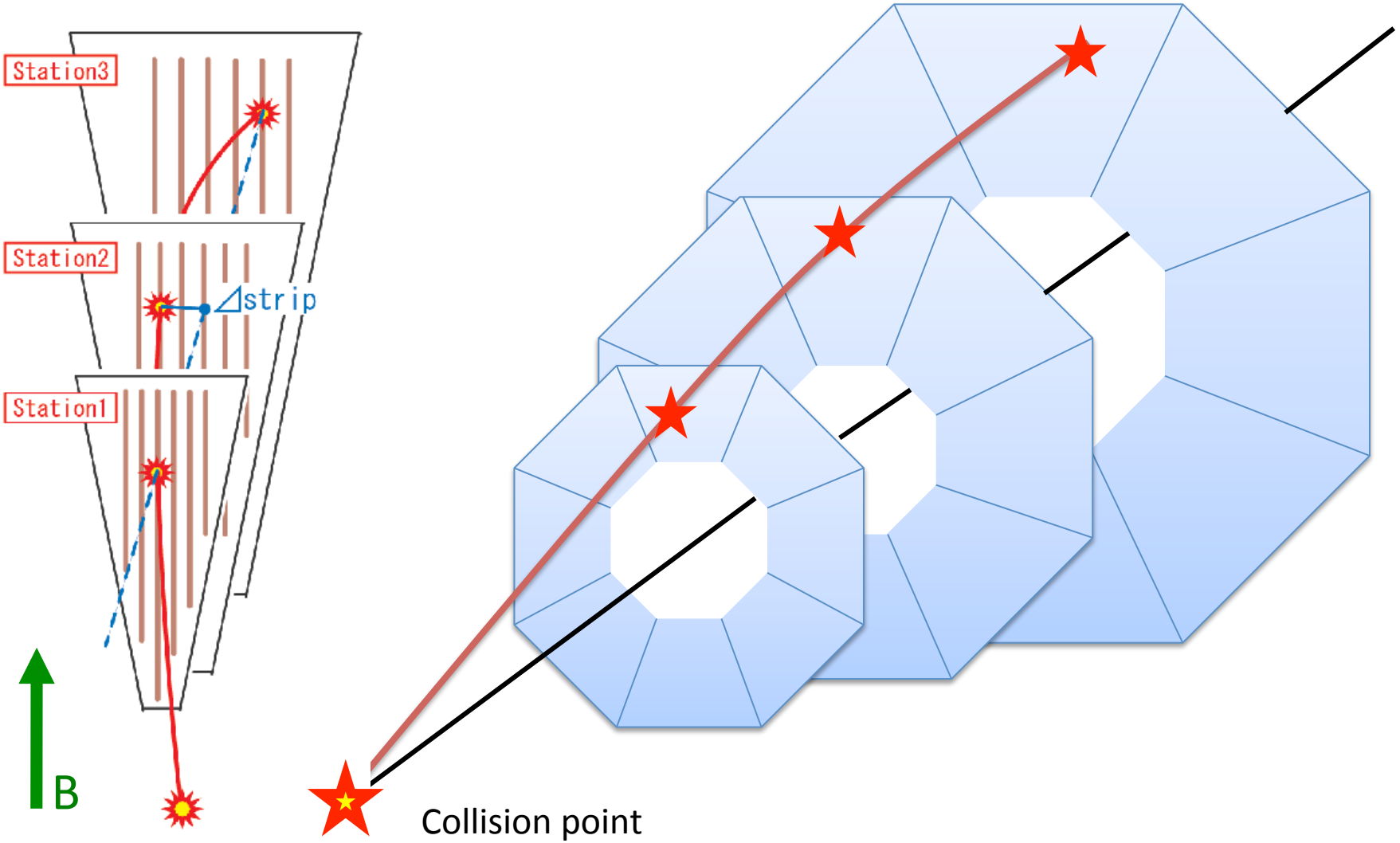
In IR

In rack room

SG1 (or SG3…) Trigger?

((MUIDLL1_N2D‖S2D)‖ (N1D&S1D))&BBCLL1(noVtx)	0x00010000	0	Enabled	18166
(MUIDLL1_N1D‖S1D)&BBCLL1(noVtx)	0x00020000	78	Enabled	1237503
RPC1+RPC3_S	0x00040000	439	Enabled	154129
RPC1+RPC3_N	0x00080000	659	Enabled	7134491
SG3&RPC3&MUID_1D_N‖S	0x00100000	14	Enabled	207142
SG1+RPC1(C)&MUIDLL1_N‖S	0x00200000	0	Enabled	10355
MUON_S_SG1_RPC3A&MUID_S1D	0x00400000	0	Enabled	29
MUON_N_SG1_RPC3A&MUID_N1D	0x00800000	0	Enabled	4229
MUON_S_SG1&BBCLL1(noVtx)	0x01000000	5061	Enabled	21122722
MUON_N_SG1&BBCLL1(noVtx)	0x02000000	20879	Enabled	59323363
MUON_S_SG1_RPC3_1_B‖C	0x04000000	0	Enabled	324
MUON_N_SG1_RPC3_1_B‖C	0x08000000	0	Enabled	30738
PPG(Pedestal)	0x10000000	0	Enabled	53
PPG(Test Pulse)	0x20000000	0	Enabled	106

!

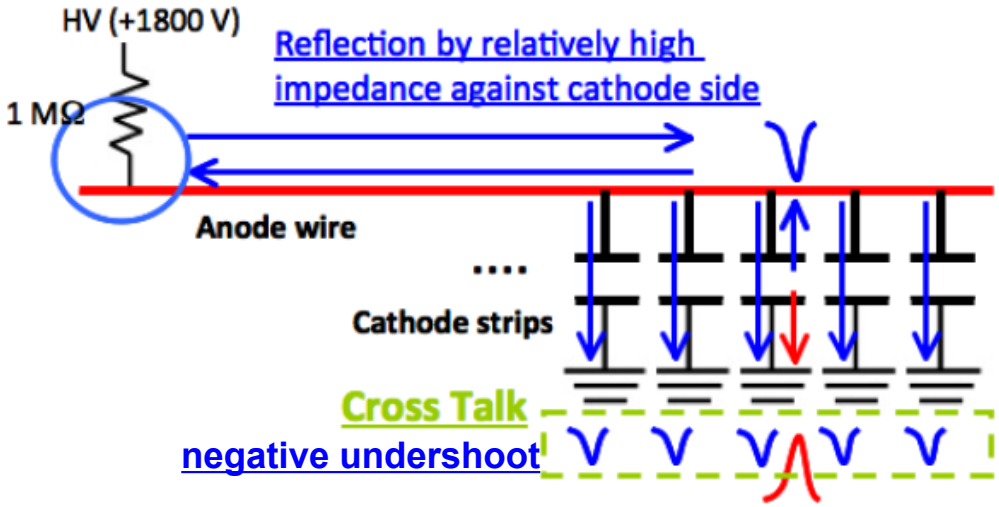


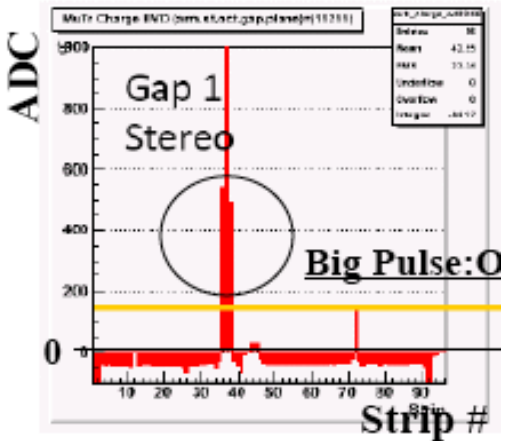
Select the track Δstrip ≤ 1 (SG1 Trigger)

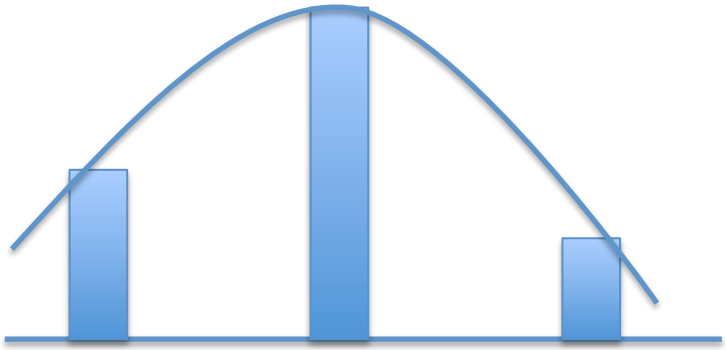
Slide by Yoshimitsu Imazu

MuTr Re-capacitation

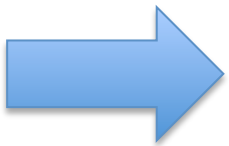
● x-talk effect & circuit restoration



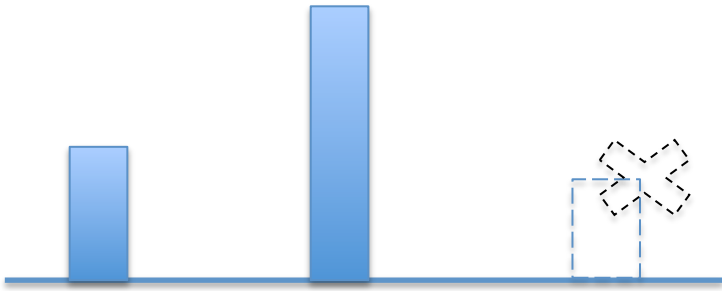




Three neighbor strips



Cross talk effect

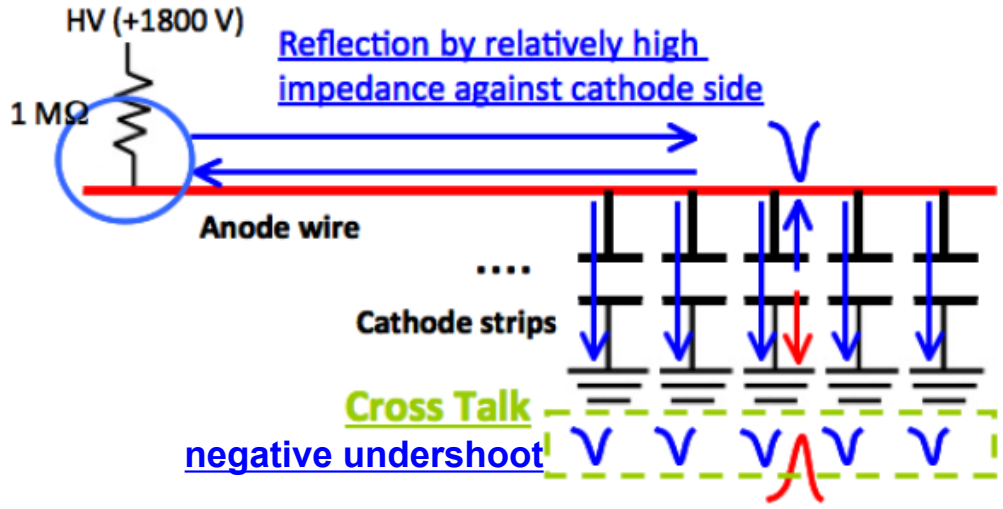


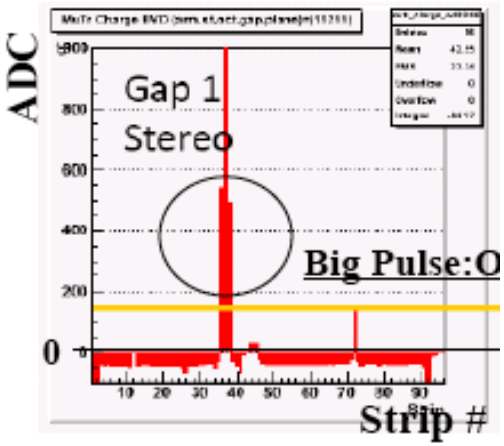
If we loose signal by negative signal..
→ can't know the exact position of particle (position resolution ↓)

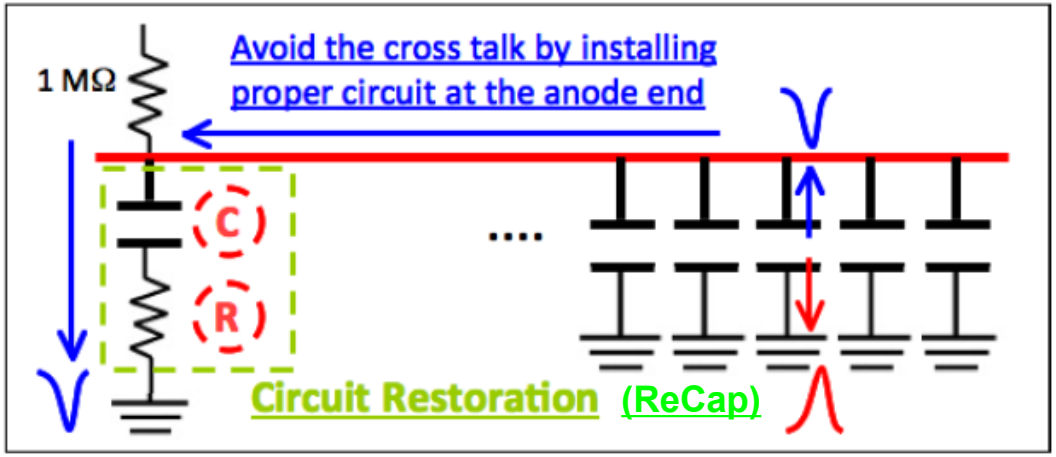
Slide by Yoshimitsu Imazu

MuTr Re-capacitation

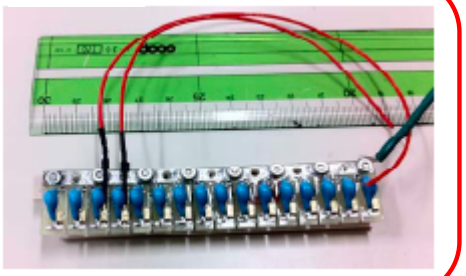
● x-talk effect & circuit restoration







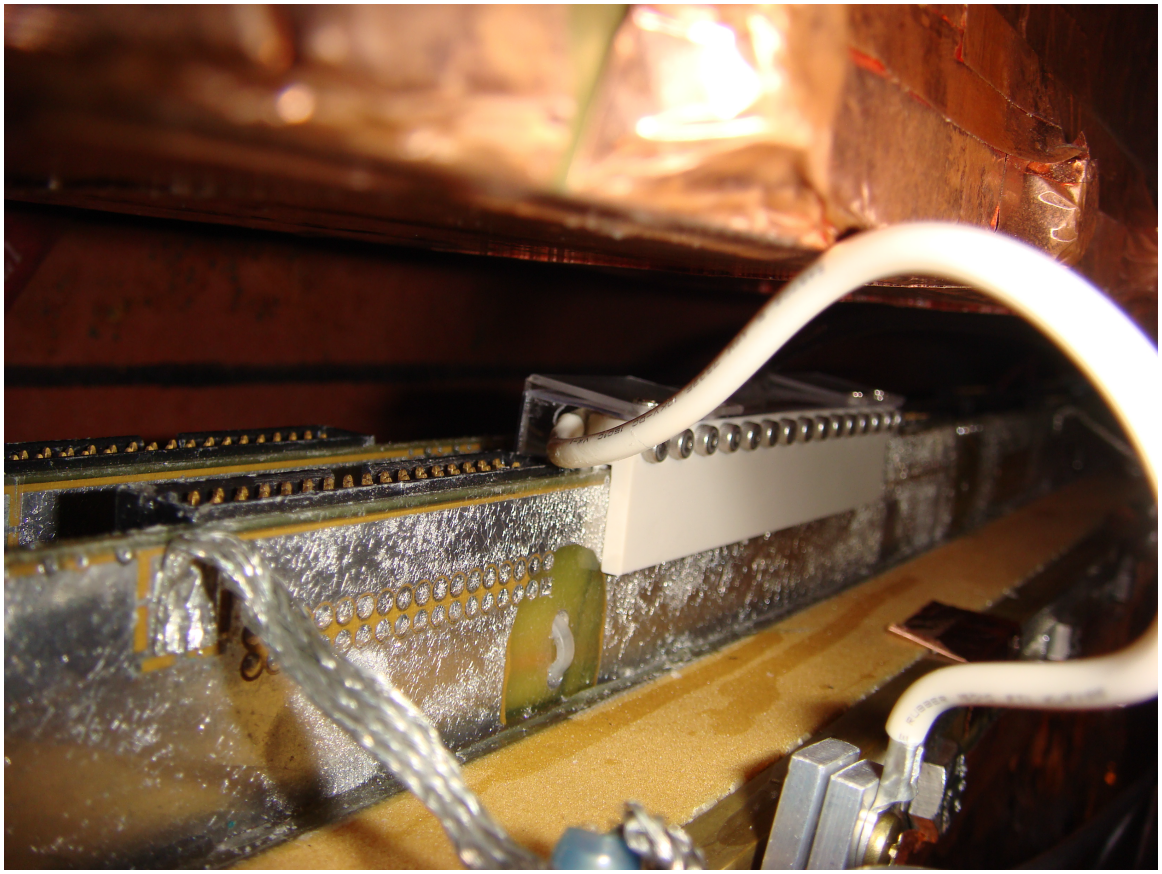
St.3



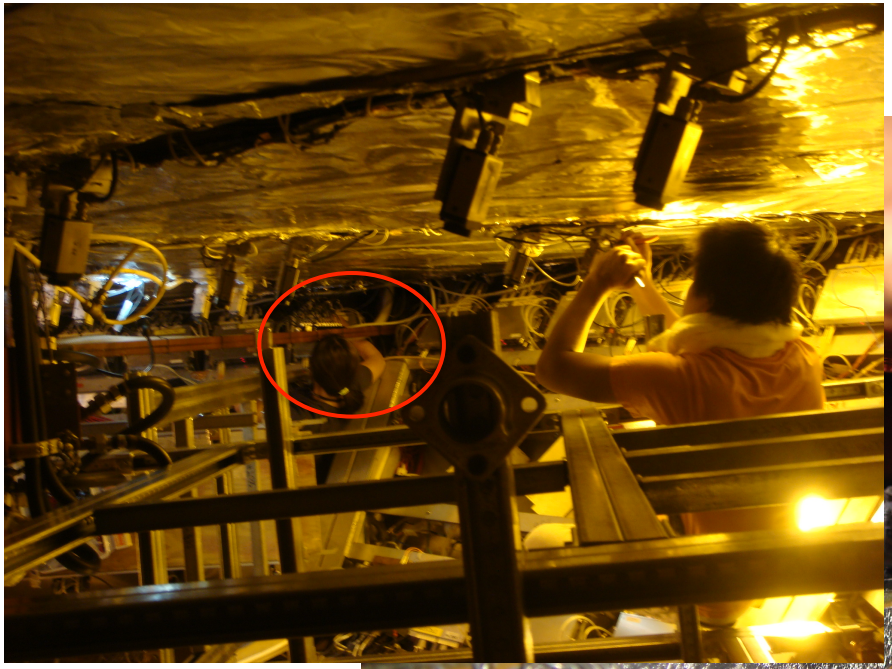
2012 Summer.....

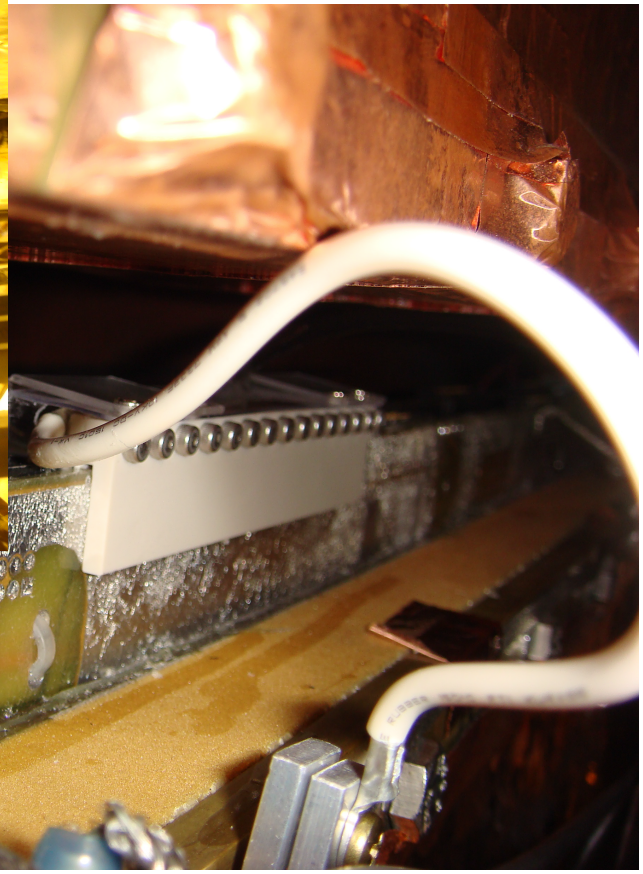
2012 Summer.....

Inside of MuTr Chamber

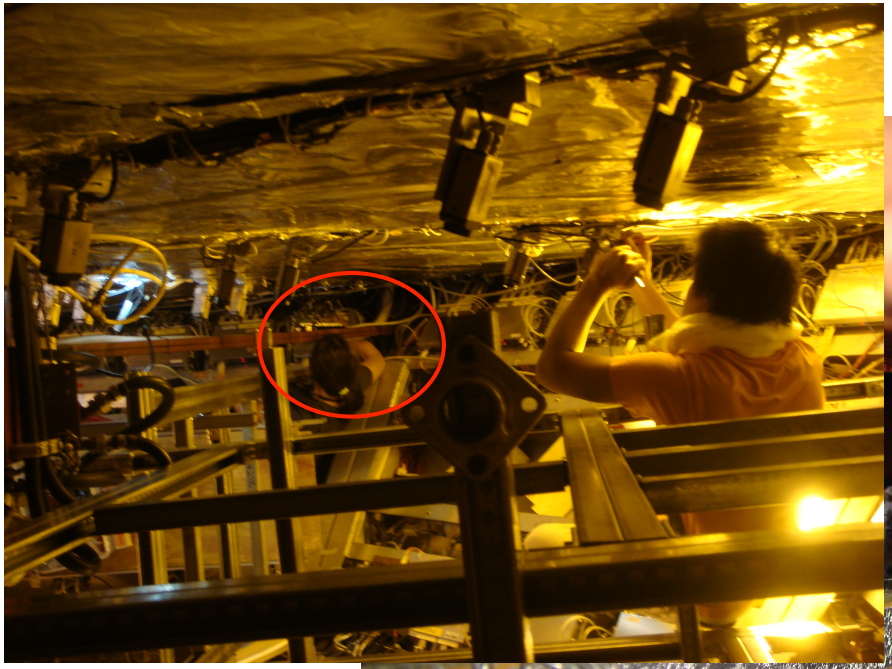


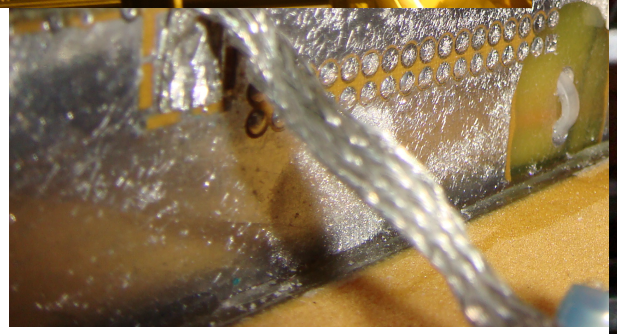
Inside of MuTr Chamber

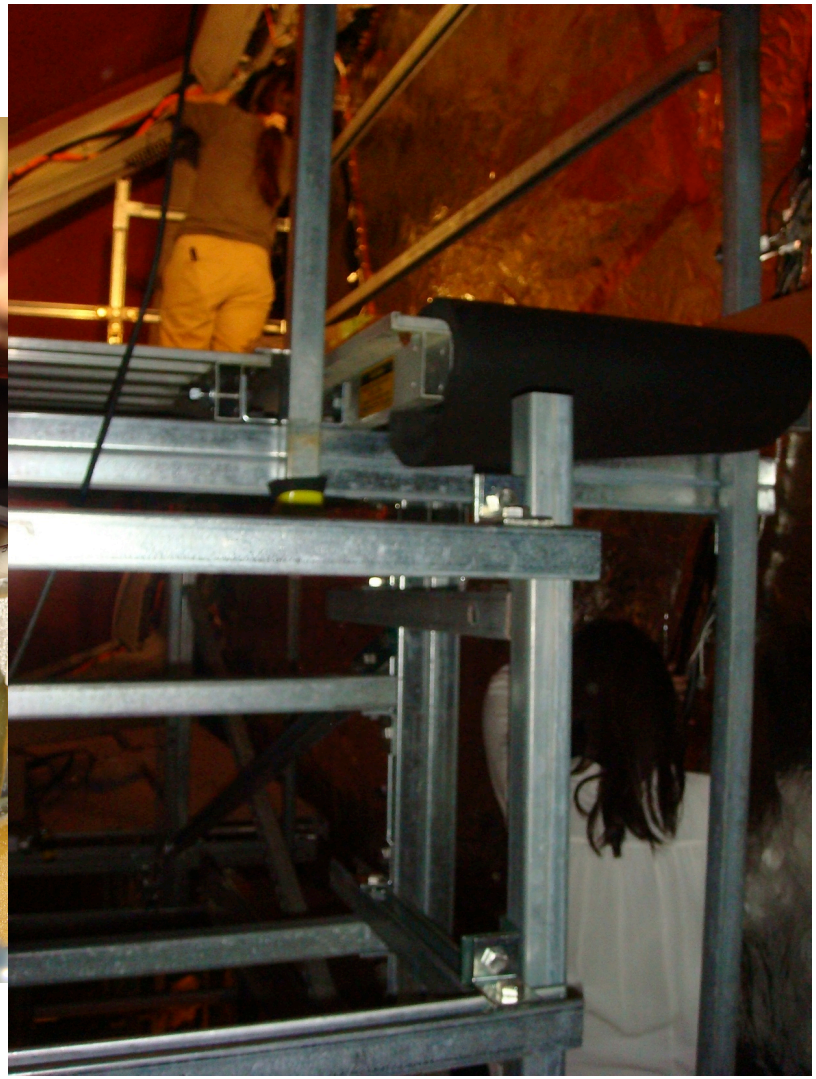




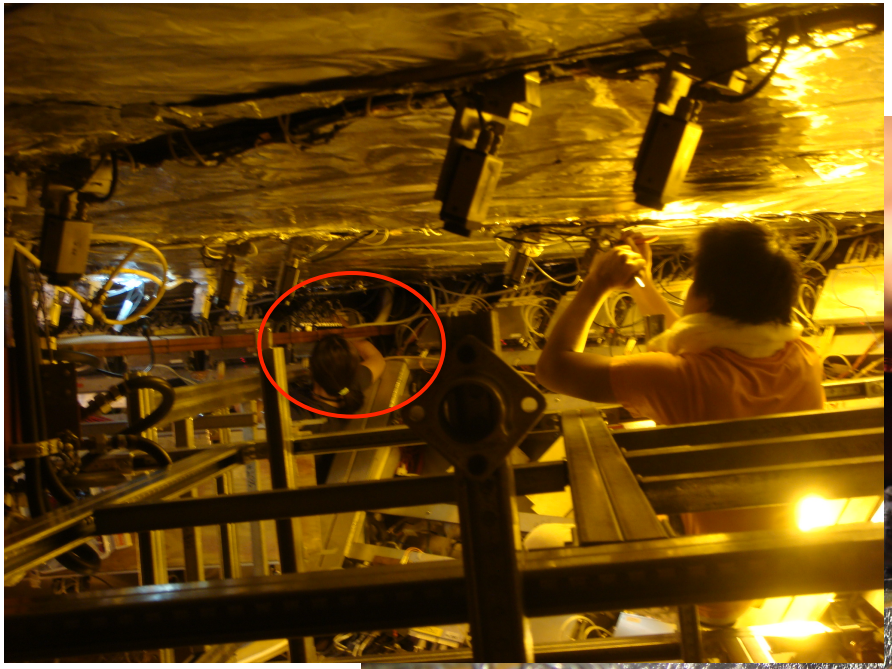
Inside of MuTr Chamber

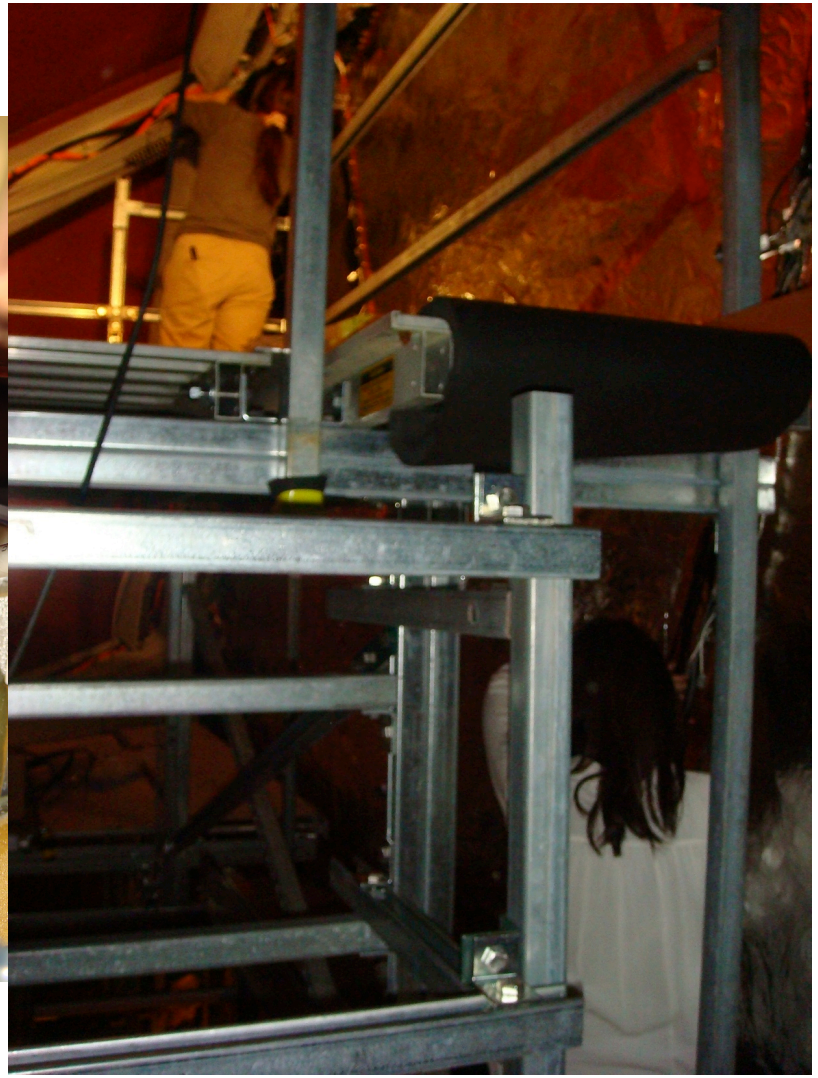






Inside of MuTr Chamber





W→mu Analysis

$$\frac{1}{2} = \frac{1}{2}\Delta\Sigma + \Delta G + L$$

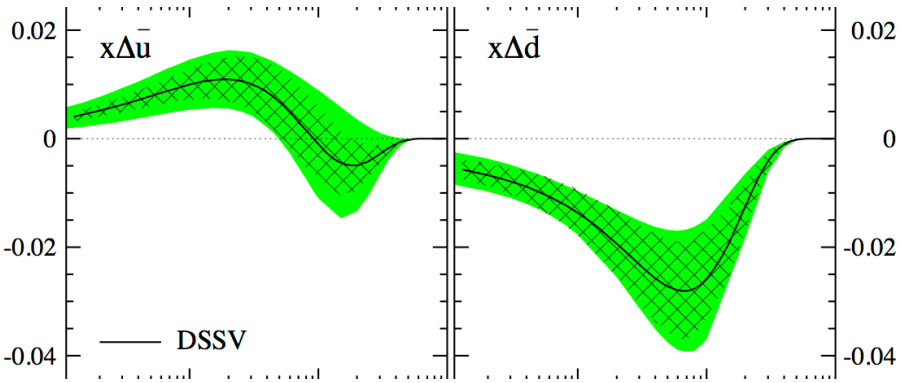
Quark | Gluon | Orbital angular momentum

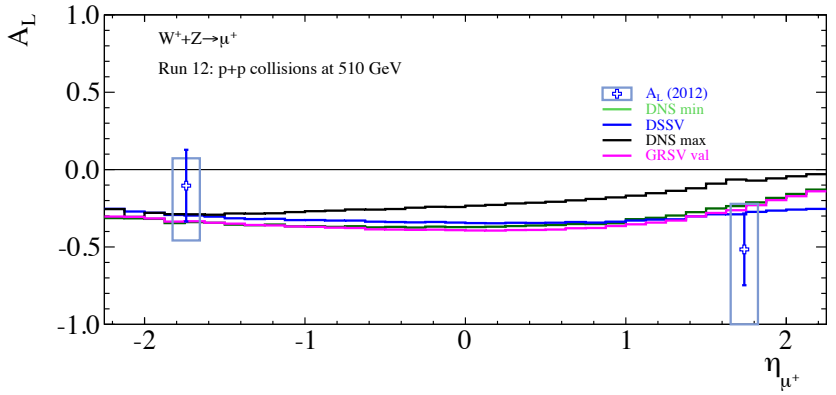
Measured by DIS experiment:

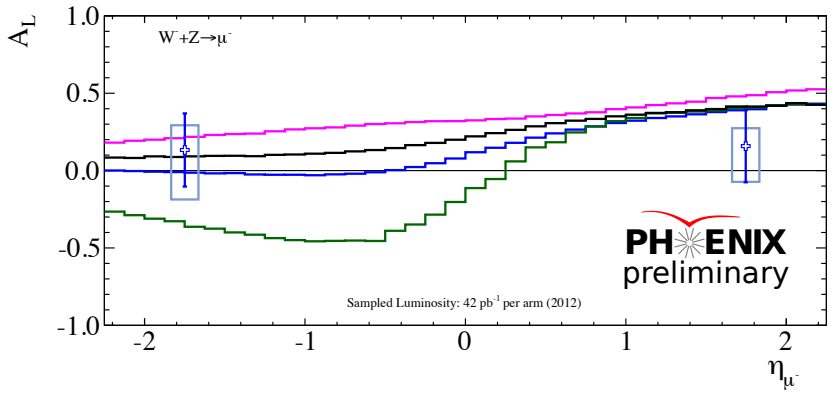
Quark contribution to the proton spin: ~30%

$$\Delta\Sigma = (\Delta u + \Delta\bar{u}) + (\Delta d + \Delta\bar{d}) + (\Delta s + \Delta\bar{s})$$

Large uncertainty







$$A_L^{W^+} \equiv \frac{\sigma_- - \sigma_+}{\sigma_- + \sigma_+}$$

$$= -\frac{\Delta u(x_1)\bar{d}(x_2) - \Delta\bar{d}(x_1)u(x_2)}{u(x_1)\bar{d}(x_2) + \bar{d}(x_1)u(x_2)}$$

Thank you!

~~Let’s enjoy Japan!~~

work!