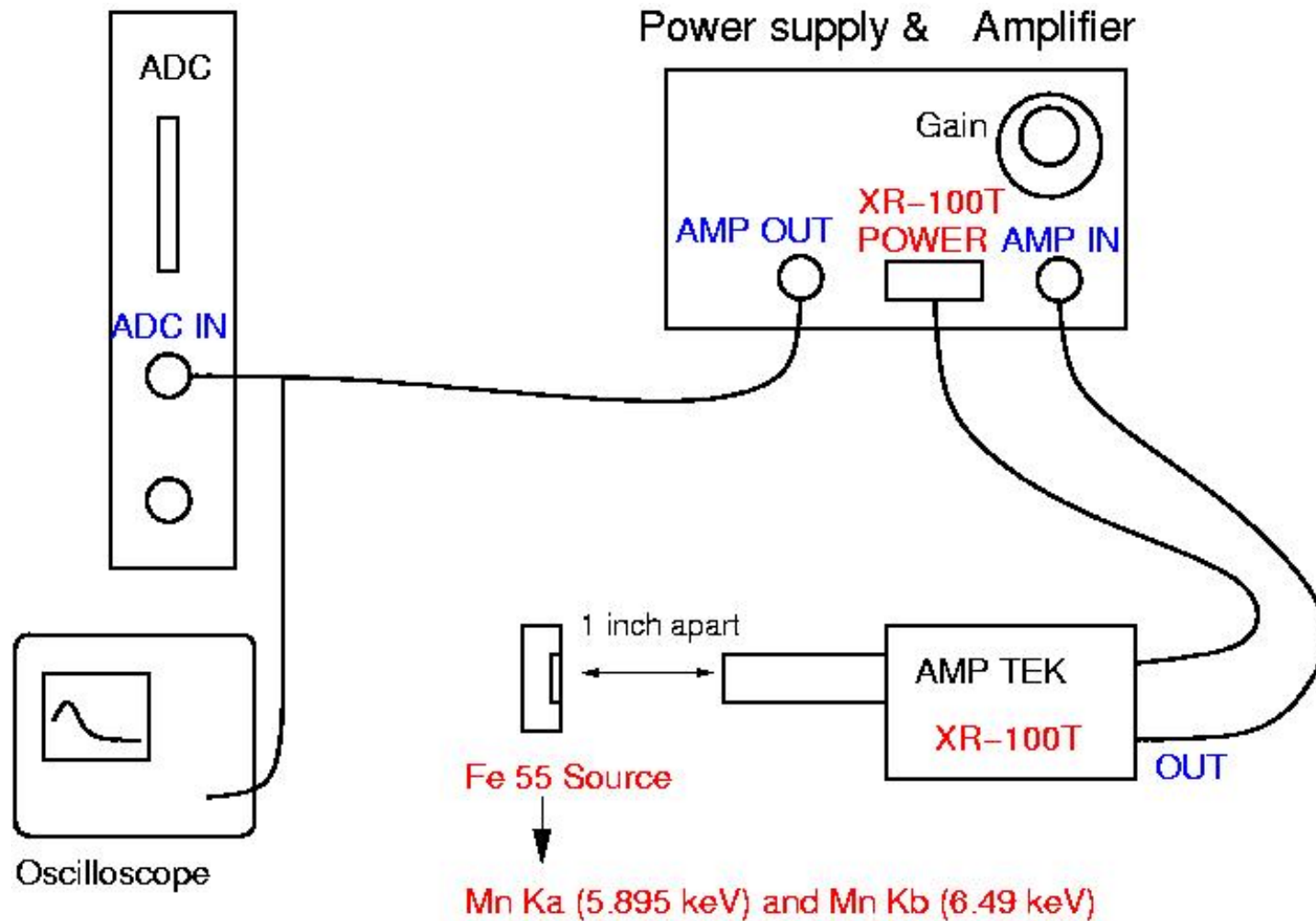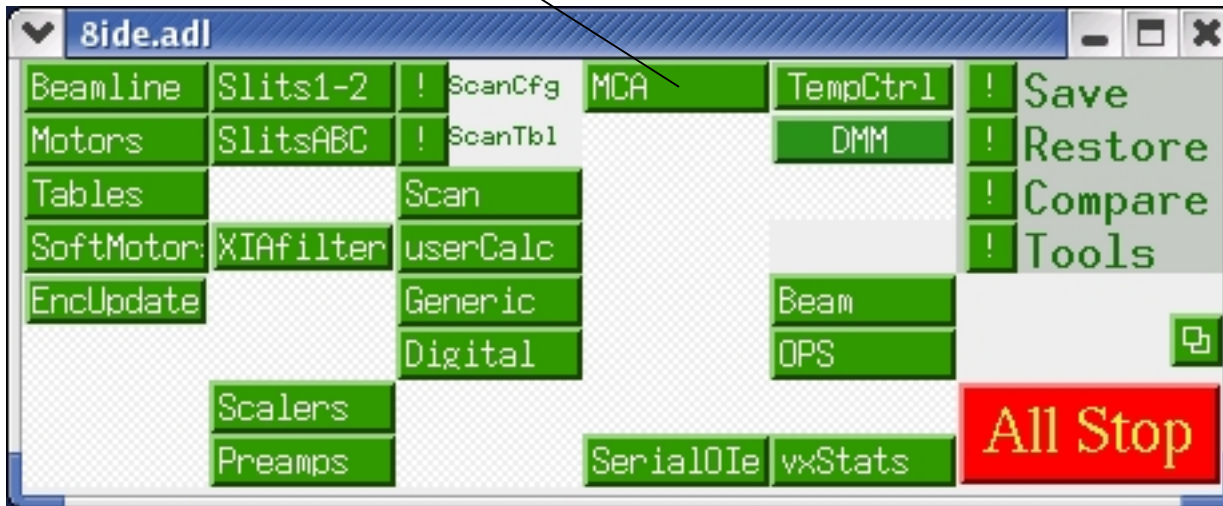# 1. Cable connection
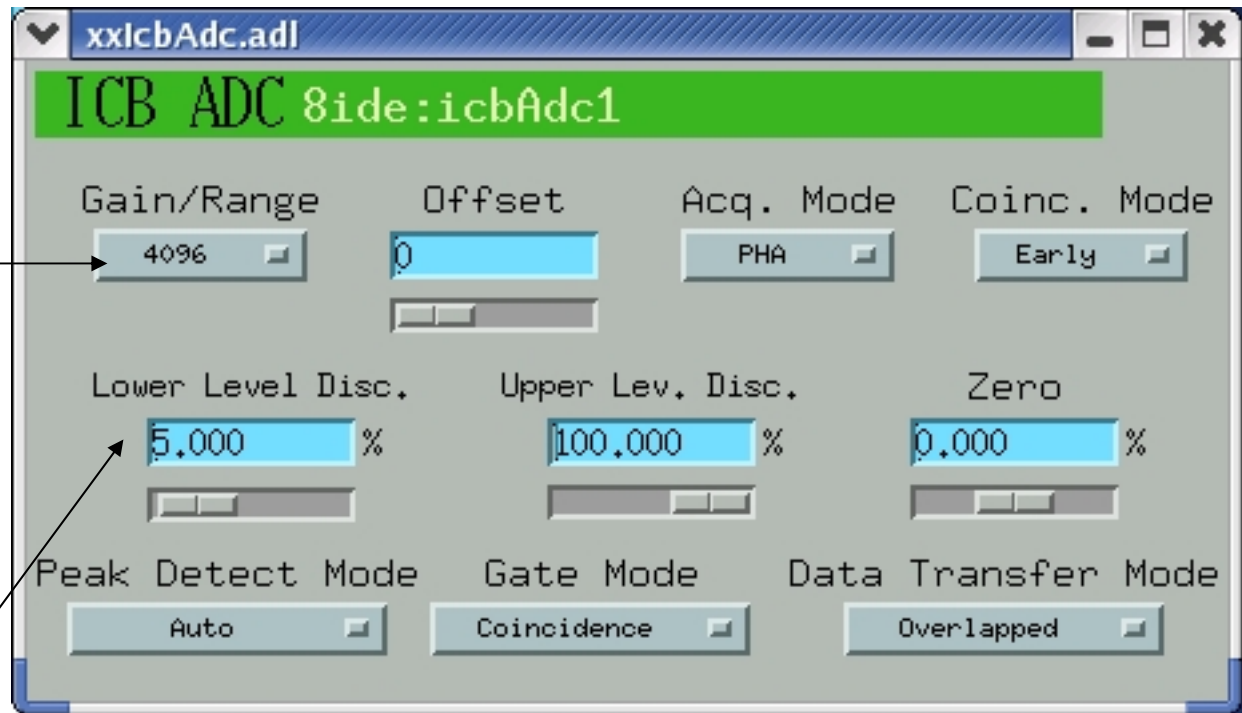

- Adjust 'Gain' to make Mn Kα signal (5.895 keV) around 2 V on oscilloscope. (Full range : 10 V)

2. Set up at 8ID-E

(1) Canberra AIM Multichannel Analyzer ⟶ EPICS MCA display
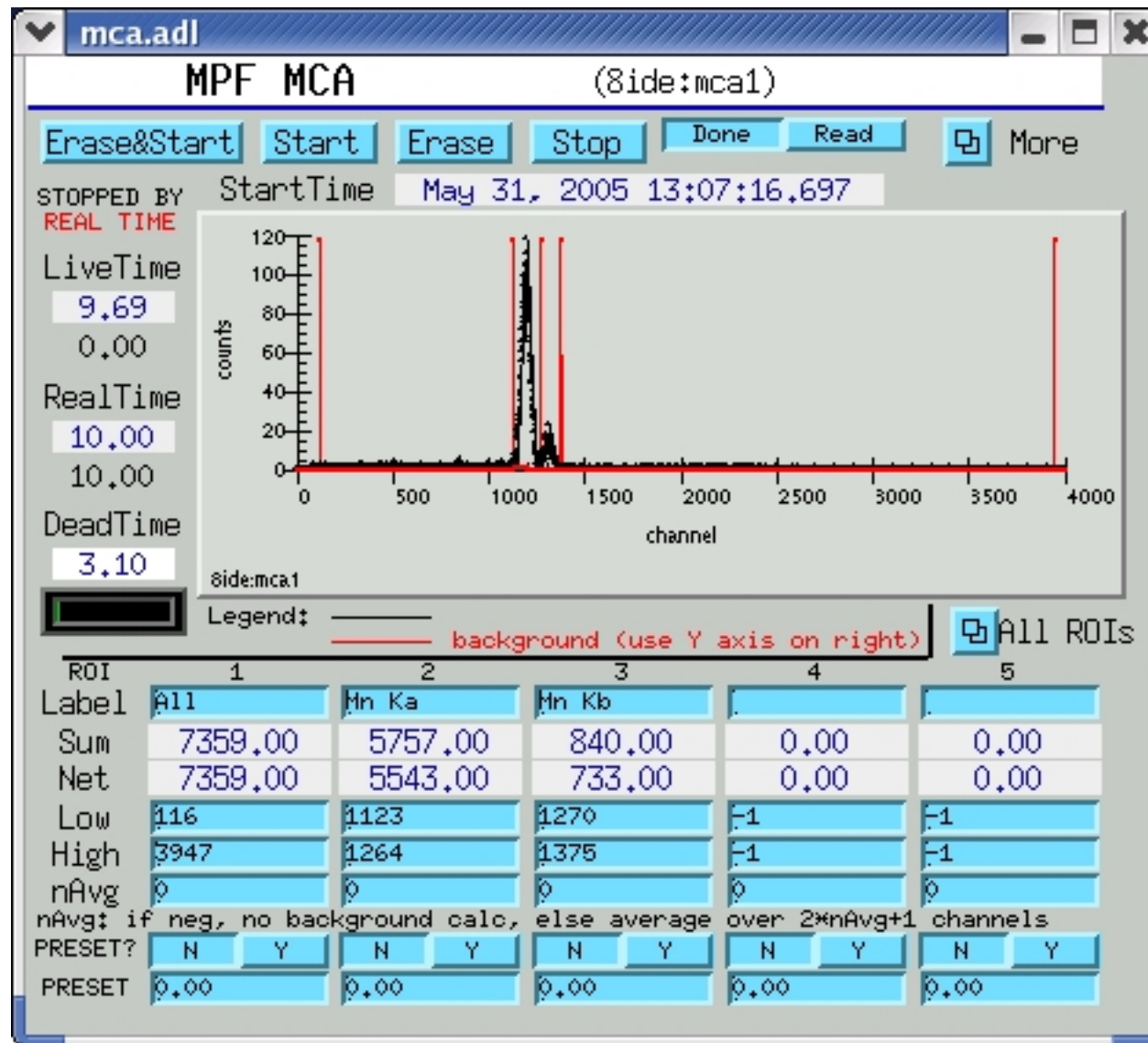
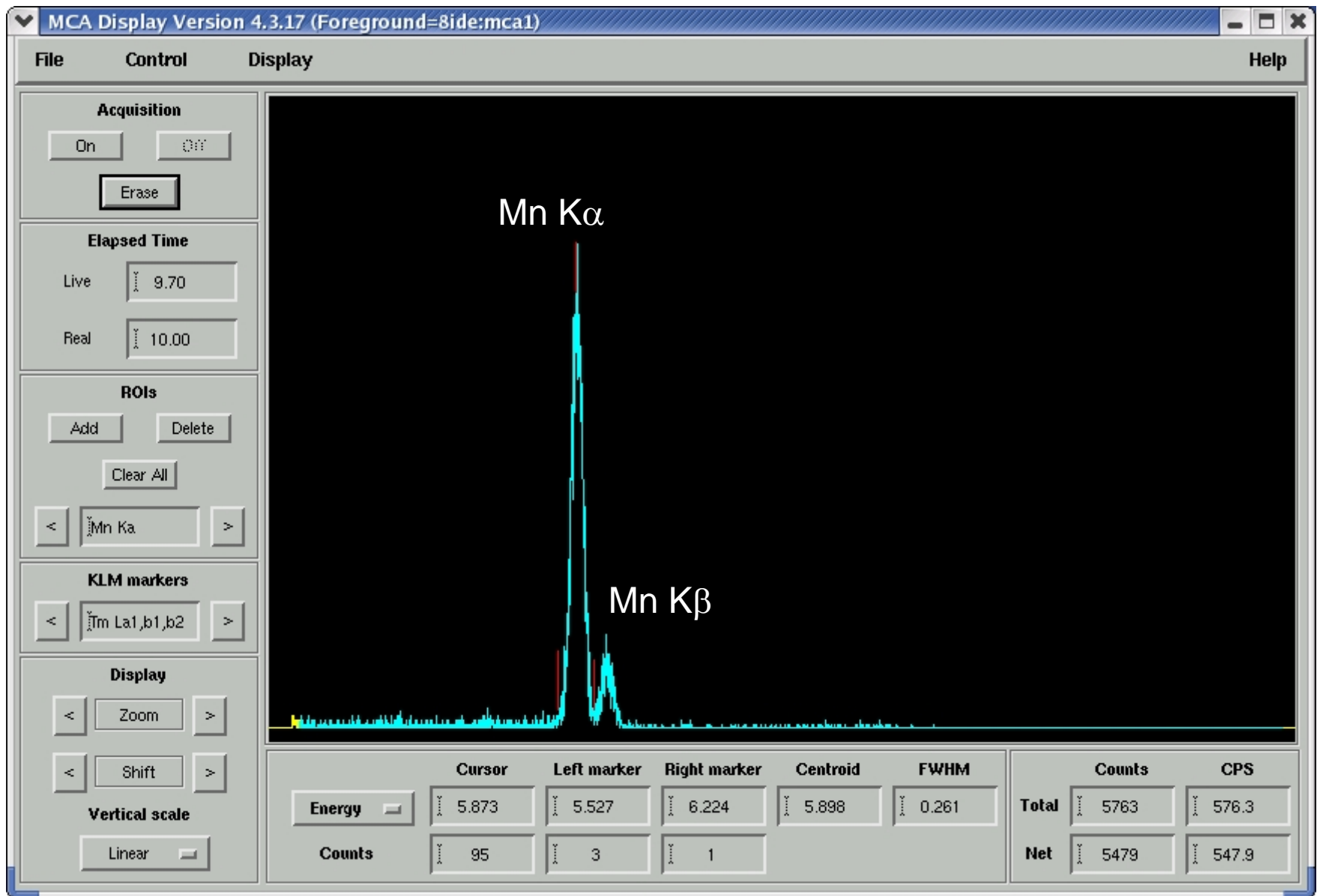(2) MCA with ROIs

(3) ADC 1 ⟶ IDL MCA display

2-1. ADC

Make sure of
4096 channels

Adjust LLD to eliminate undesirably high intensities at low channels

2-2. EPICS MCA display

2-3. IDL MCA display

2-3 continued

(1) File -> Foreground -> Open detector -> 8ide:mca1
(2) ROIs (left panel) -> Clear All
(3) Set ROIs for Mn Kα (taller peak) using mouse buttons
    mouse middle button : left marker of ROI
        right   : right
        left   : setting this ROI
(4) Put a name 'Mn Ka' for this ROI
(5) Repeat (3) and (4) for Mn Kβ (shorter peak)
(6) Control -> Calibrate energy -> compute calibration
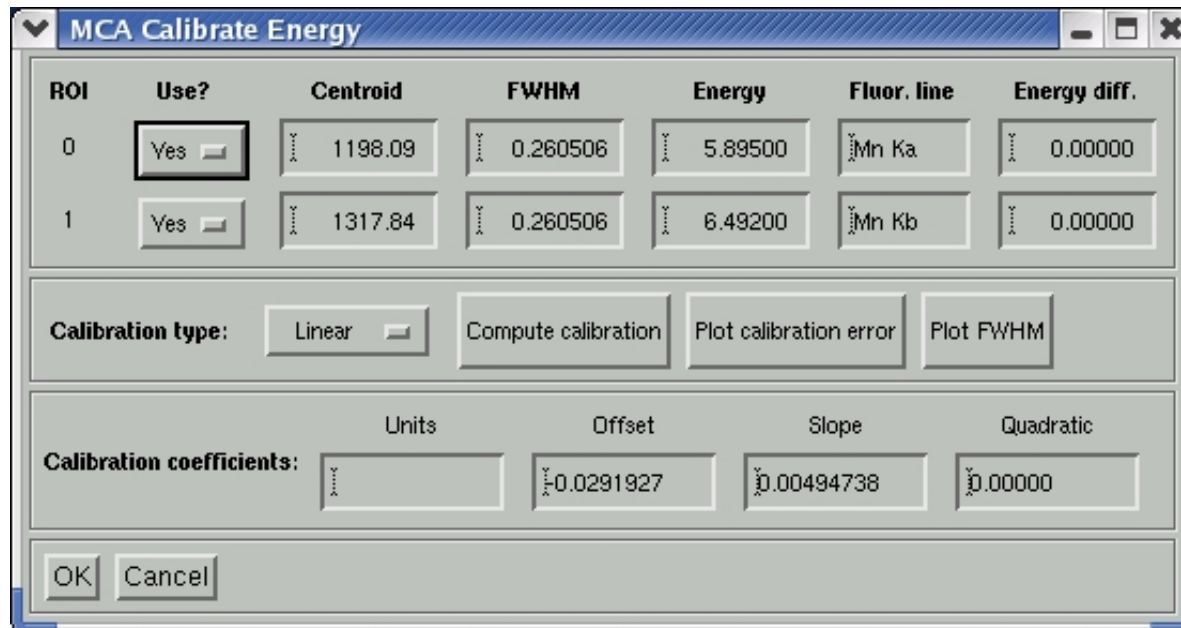
2-4. Work with real signals

Repeat ROI setup for real signals
- Clear all previous ROIs
- Typically
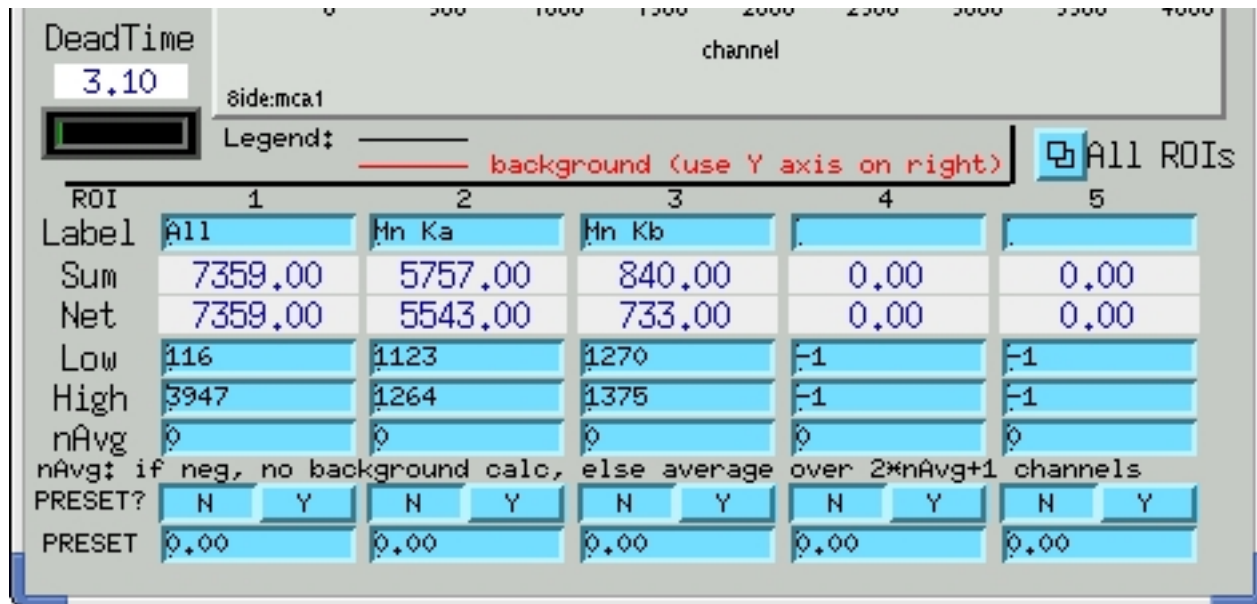   (1) "elastic" for elastic x-rays
    (2) "fluo" for fluorescence
    (3) "full" for full mca
    (4) see also these ROIs in EPICS MCA display

-Unfortunately, the order of ROIs is determined by the counts of
  each ROI (see how the order of ROIs changes in EPICS MCA display)

3. Data acquisition in SPEC

(1) Start SPEC: topaz% spec8IDE

   (if not working, type /home/users1/S8SPEC/bin/spec8IDE)

   - Note that '/home/user1/S8SPEC/macros/common/epics_mca_3.3.mac'

      is assumed to be installed automatically.

(2) SPEC> qdo /home/users/8IDEUSER/local_macros/mcadet_3.mac

(3) To activate MCA counters in SPEC,

   SPEC> mcadet_use 1 (mcadet_use 0 to inactivate)

(4) SPEC> ct 10

   - Note that in "mcadet_3.mac" 'mca' always reads the 1st ROI

      in EPICS MCA panel, 'sca1' the 2nd ROI, and 'sca2' the 3rd ROI.

(5) To save a whole MCA spectrum,

   SPEC> mca_setup

   SPEC> getandsave_mca

   - Make sure that a filename for SPEC was assigned.

3-1. Read MCA in C-PLOT

- To read a MCA spectra save in SPEC, use C-PLOT
  C-PLOT> f1 scans.4

  .....
  Normalize points ? No
  Get MCA data if present ? Yes

  ....
  Note that x-axis denotes energy in keV, which has been
  calibrated in IDL MCA panel.

Questions? drlee@aps.anl.gov