Update on my recent work (starting from September 2011)

I. HDF5EXPLORER

- Camera image

  - converts image from uint $\rightarrow$ float32

  - subtract the 'offset' from data record

  - subtract the 'const. offset' from the menu:

- add GUI/plot for WF vs Ev (waveform vs event)

  - Large image size is $\approx 10^5$ events $\times 10^4$ WF bins $\times 4$ byte (float) ≈ 4 GB

  - constrain on time index in GUI

  - constrain on event range in GUI

  - For multi-CalibCycle runs add +1CC and -1CC buttons to jump between Calib-Cycles

- add try-except protection against hdf5 corruption

- CSPad GUI is changed:

  - sliders are removed,

  - multi-window GUI is added,

  - each window has a dataset - image is associated with dataset for each window. !!! Geometry correction is taken for the 1st CSPad dataset !!!

- add images of the CSPad2x2 in the frame of CSPad plots

- a bunch of other small fixes

II. "HDF5ANALYSES"

- "HDF5Analyses" in general is everything, that is not included in the `HDF5Explorer`

- It is intended to be the next generation of the `HDF5Explorer`

- Use modular approach; packages can be re-used in other projects, i.e. `psana`

A. Current status

A set of currently available packages

- HDF5Analysis package

  - tree-like access to hdf5 data structure

  - tree-like access to the numpy structure of the datasets

  - needs to be integrated with graphics and algorithms

- PyCSPadImage package

  - classes that provide access to the standard CSPad geometry calibration parameters

  - class `CSPadImageProducer` - generates the 2-D array with CSPad image

  - everything is in Python

- PlotsWithGUI package

  - is intended to provide user-friendly interface to graphics

  - integrates graphics with their GUIs in the same window(s)

  - class `ImgExplorer` - integrates 2-D image with 2-tab bar multi-window GUI. Input is a 2-d image array. Derived graphics for selected regions: zoomed images, spectra, x, y, R, and ϕ projections, profiles along the lines and circules, etc.

  - classes `Drag`, `DragLine`, `DragCircle`, `DragRectangle` - fast interactively changeble objects