



# ***EIGER and EIGER2***

***Andreas Förster, Application Scientist Crystallography  
HDRMX Meeting, DLS, 6 Nov 2019***

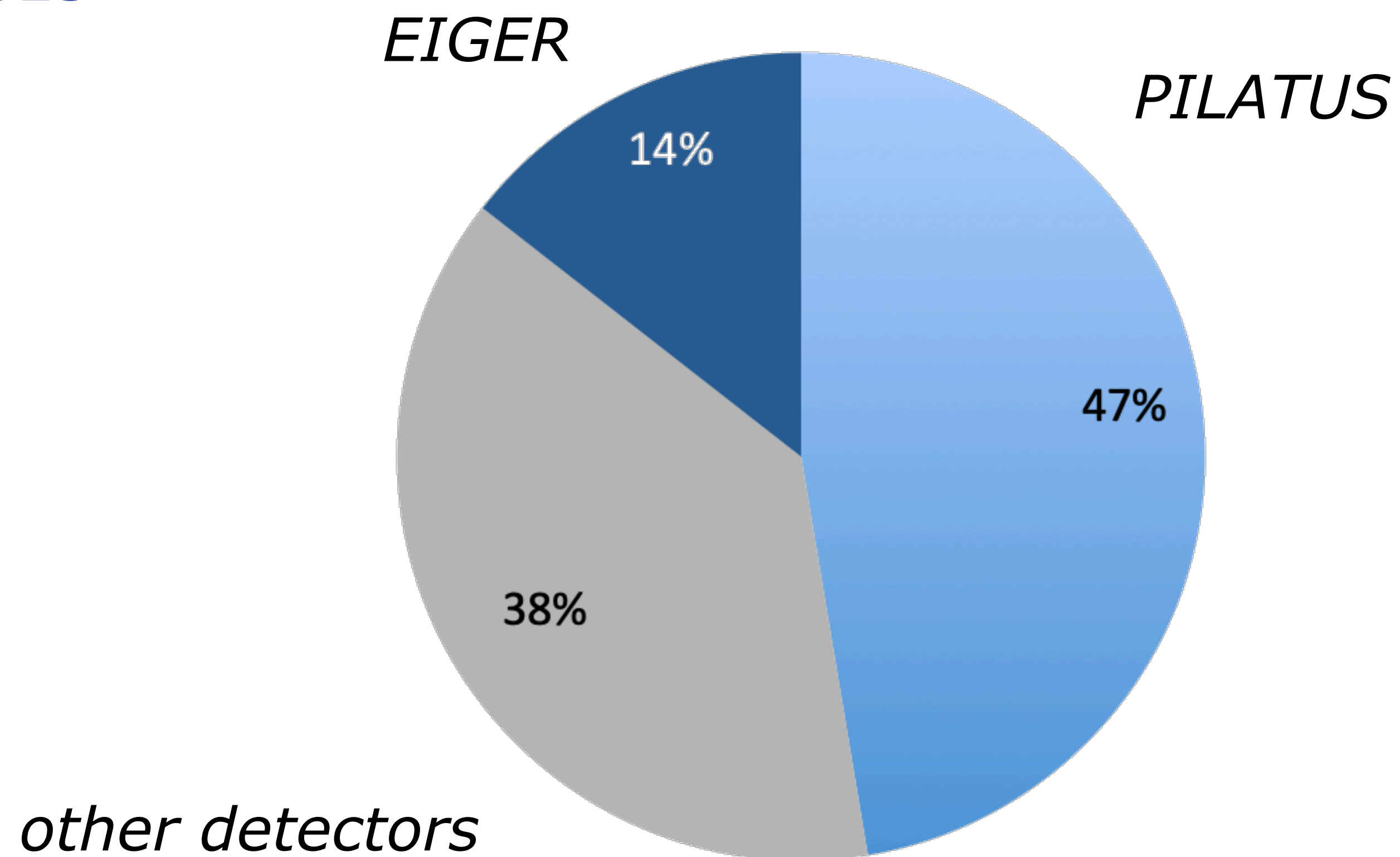


# ***EIGER has arrived***



# ***Users are successful with EIGER***

***PDB releases in Oct 2019***





# ***EIGER2 – What's different?***

## ***Nothing***

- *Wouldn't that be nice?*

## ***Few things***

- *Additional features*
- *Different hardware*

- **/entry: NXentry**  
@default = data
  - **/entry/data** (link to threshold1)
  - **/entry/threshold1: NXdata**
  - **/entry/threshold2: NXdata**
  - **/entry/instrument: NXinstrument**
    - **/entry/instrument/detector** (link to threshold1)
    - **/entry/instrument/threshold1: NXdetector1**
    - **/entry/instrument/threshold2: NXdetector2**



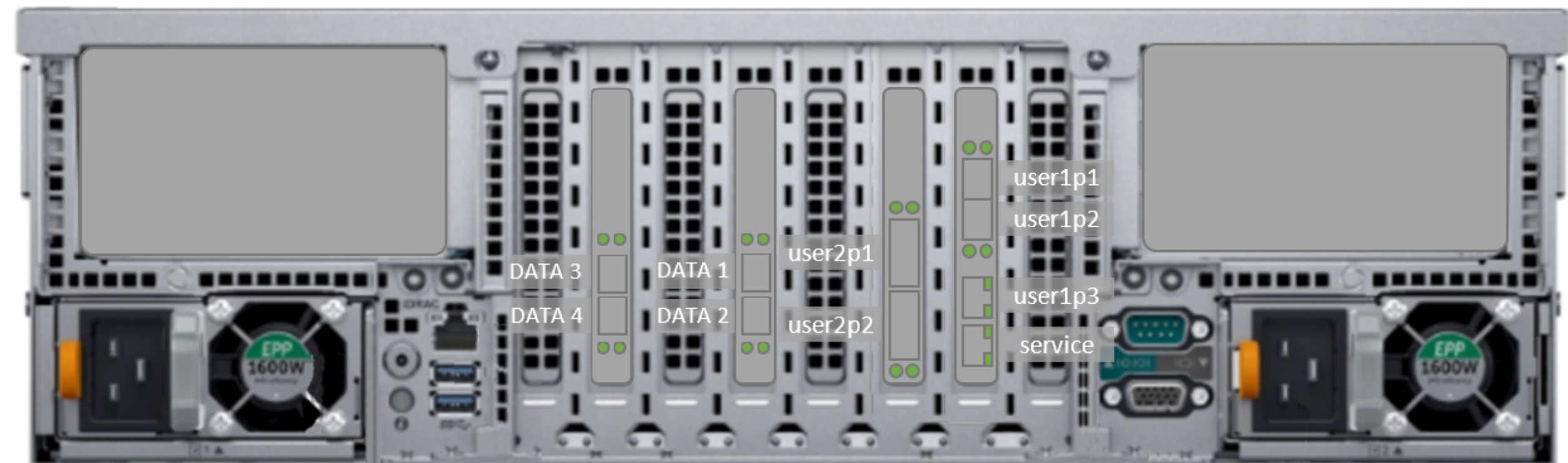
# ***Data Interfaces - HW***

Detector – DCU connection (E2 X 16M)

- *4 x LC/UPC duplex connectors (10 Gbps)*

*DCU – User Server*

- *2 x 10 GbE SFP+*
- *2 x 1 GbE Base-T*
  - *1 fixed IP for servicing*
- *2 x 100 GbE QSFP28*

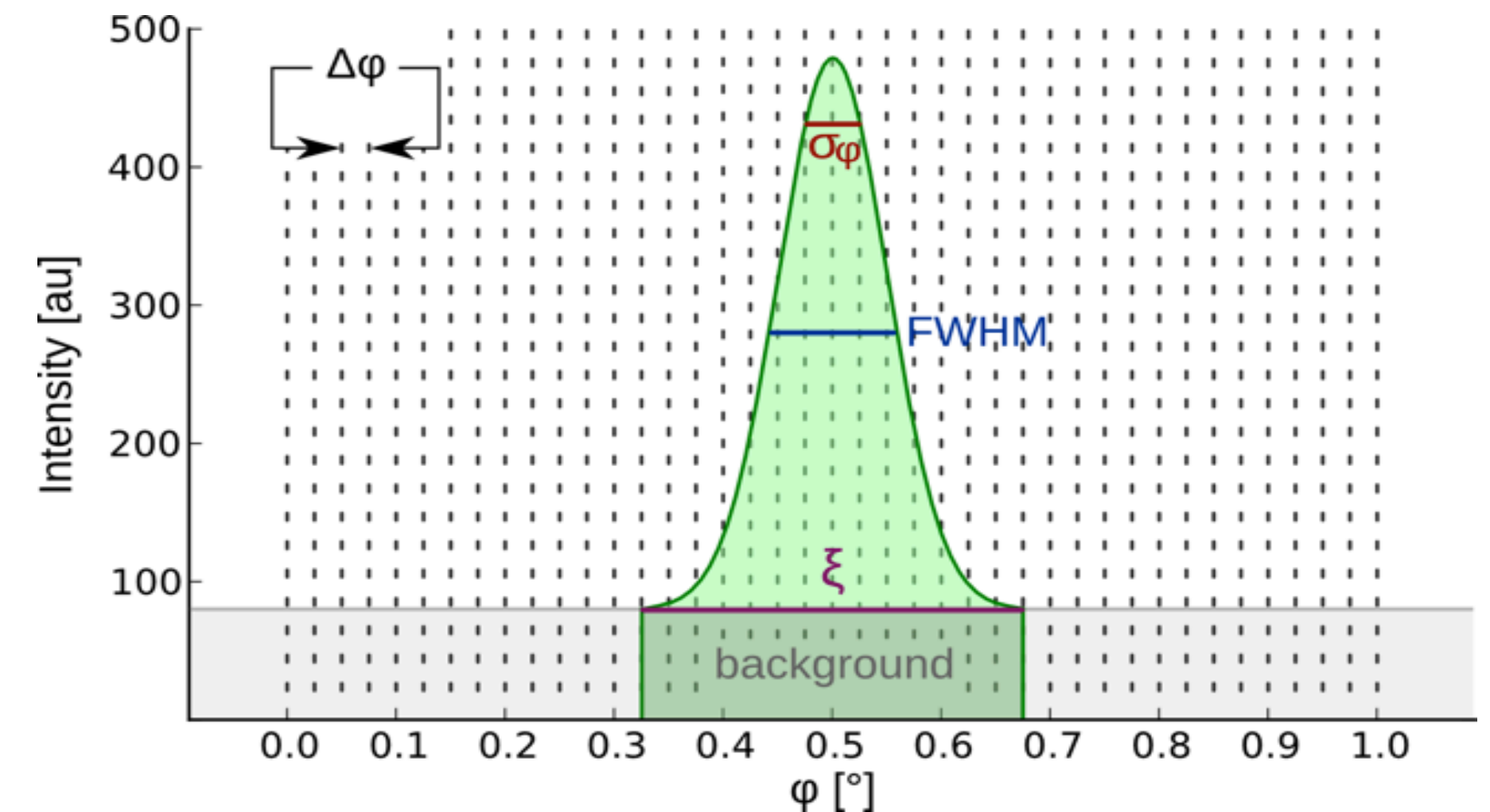




# Drawbacks of EIGER

## Good data means lots of data

- *Finer slicing than with PILATUS (see Casanas 2016)?*
- *Faster data acquisition than with PILATUS.*
- *More pixels than PILATUS.*
- *But: Better compression than PILATUS*



# ***Compression of EIGER data***

## ***PILATUS3 6M***

- 100 Hz, 6 million pixels*
- CBF, byte-shuffle, 6 MB per image, 600 MB/s*

## ***EIGER2 X 16M***

- 130 Hz, 18 million pixels*
- HDF5, bs-LZ4, typically <6 MB per image, <600 MB/s*



# ***EIGER data***

## ***FileWriter***

- *EIGER-native HDF5*
- *HDF5 converted to CBF/miniCBF*



## ***Stream***

- *Site-specific HDF5*
- *CBF/miniCBF*



# ***Processing of EIGER data***

***HDF5 is supported natively by***

- XDS, autoProc: Please use durin library for best results*
- DIALS, xia2*
- HKL-2000*
- mosflm*

***miniCBF is needed for***

- CrysAlisPro*

# ***EIGER HDF5 data***



## ***FileWriter***

- *EIGER-native HDF5*
- *Modified HDF5*

## ***Stream***

- *Site-specific HDF5*





# ***Gold Standard from EIGER***

## ***Bad news***

- *EIGER does not write Gold Standard.*

## ***Reason***

- *EIGER does not have all required information.*



# ***Gold Standard from EIGER***

## ***Good news***

- *With EIGER, you can easily write Gold Standard.*

## ***Stream and Stream 2***

- *Program your client accordingly.*

## ***FileWriter and FileWriter2***

- *FW: Wait for upgrade of API.*
- *FW2: Add missing fields and values.*

