
# NeXus Code Camp 2014

# Topic Selection(1)

- Issues Walkthrough
- Procedural Questions
- Design Issues
  - NeXus Interfaces
  - Lightweight tags versus application definitions
  - Name clash avoidance
  - Multi file NeXus files
  - Associating axes with data, nTh iteration
  - Optional content in application definition
  - Storing errors
  - Finding default data

NeXus

# Topic Selection (2)

- Class Issues
  - NXmx
  - NXstmx
  - NXfluo
  - NXformula
  - NXcansas

# Topic Selection (3)

- Software Issues
  - Validation tool
  - nxpy
  - cmake for sphinx
  - NAPI release
- Miscellaneuous
  - Things forgotten in my list
  - Manual cleanup
  - Do we review decisions made by Tech committee (variants, slits etc)

# Issues Walkthrough

- Many issues at github
- I think many of them can be quickly resolved
- May be code camp material otherwise
  - Some work on the manual may be needed

# Procedural Questions

- How do we assign priorities?
- How do we deal with companies?
- How do we remove NeXus ballast?
- How to organize proposals and discussions?
  - Can be pushed into the NIAC meeting as they have to decide anyway
  - NeXus as ISO standard?
  - Funding

# Tags and Interfaces

- Taming the NXdetector monster of ~60 badly defined fields
- Change to NXdetector implementing one or more Interfaces:
  - NXIbeamline_component, NXIarea_detector, NXIarea_tof_detector, …
  - Organises the parameter space
    - allows us to be more specific
- A new version of the manual has been prepared with this for review
- In a first approximation, Tobias suggests to something similar for application definitions

# Name Clash Avoidance

- If a field name is not taken by NeXus anyone can use it
- May cause a problem when NeXus needs to define the name
- Suggested solutions:
  - prepend user_
  - assign a NXtype to the field rather then a name
  - NXcollection, the favorite on the Telco

# Multi File NeXus Files

- HDF group warns against very big files…
- DECTRIS needed to distribute a datafield across multiple files
- NeXus already has linking external groups and fields
- But for distributing data new rules would be needed
  - Find axes easily for the data in separate files
  - Keep the relationship between files somewhere

# Axes, the nTh Iteration

- Requirements:
  - Need axes for data reduction and visualization
  - Multiple sets of axes possible for same data
  - Multidimensional scan intent versus what really happened
  - A given axis can be dependent on another axis; point into a multidimensional array
- NeXus already has:
  - axes attribute
  - axis and primary attribute
  - A group attribute solution which did not make it into the manual
- Can only be solved by convention

# Errors

- As of now we have error fields in some base classes
- A standard scheme would be better
- Learn from canSAS
- Suggestion: uncertainties attribute which lists the arrays holding the errors
- Suggestion: field name suffixed with _esd

# Finding Default Data to Plot

- Now: search NXdata, attribute signal=1
- Proposed:
  - add default_NXentry at file level
  - add default_NXdata attribute at NXentry level
  - add default_data attribute to NXdata

# Review of Definitions

- CIF-NeXus: NXmx
- NXfluo
- NXcansas
- NXstxm
- NXformula

# NXformula

- Describe relationships in data files
- Last state from Telcos, based on Bens suggestion:
- NXformula
  - formula = A = B*c
  - A = link to some data item
  - B = link to some data item
  - c = 27.8
- Use muParser syntax
- Documentation only, implementation is not our business

# Real work: coding

- NAPI release?
- New validation tool?
  - current: complicated, in bad shape
  - performance needed: code as C library?
- Build docs with sphinx through cmake

# Late Arrivals

- cansas stuff
- Telco with DECTRIS
- The HDF people may join us
- Excursion?