Dirc FX Requirements: algorithm

- Data size reduction
  - Raw element data is highly redundent (trigger time, addresses repeated)
  - Most efficient structure uses 32-bit words, flat addressing (<10% occupancy)
- Efficiency
  - 2KHz ceiling
  - Read each input datum once, Construct results in-place in output container
- Robustness
  - Must be able to handle corrupted data content
    - Fix small problems (missing redundent data)
    - Identify major problems without crashing (output container = input container)
- Output TC must allow efficient TC $\rightarrow$ Digi conversion
  - Fast identification of output container content
  - Fast and separate location of TDC, ADC data
- Optional features
  - T0 subtraction
  - Monitoring

Dirc FX Requirements: code

- Configurable
  - Choose specific algorithm at config transition
- Handle time-evolution
  - Algorithm versioning system
- Algorithm must also run in OEP
  - Testing and debugging
  - Run in OEP when dataflow FX returns input container
  - Algorithm not a part of Action

odfFlatTC<T>

- In OdfContainerTools
- Functions as a value-stored vector of objects of class T
- Flattens the detector heirarchy (IE module → channel)
- Provides a TC ‘mezzanine’
  - Heterogenous odfFlatTC<T> TCs can be stored in an odfXTC
- Provides indexed access to data (base to CalTC<T>)
- Constructors
  - Fixed-length pre-allocation + initialization (used by calibration + populators)
  - Extensible via new(odfXTC) (construct FX output in place)
- Can be subclassed to add data members
- Overhead - 2 longwords + odfXTC (longwords total)