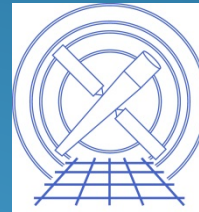
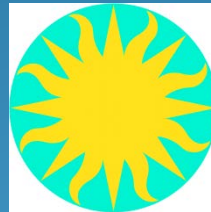


STC2:

Transformations and WCS

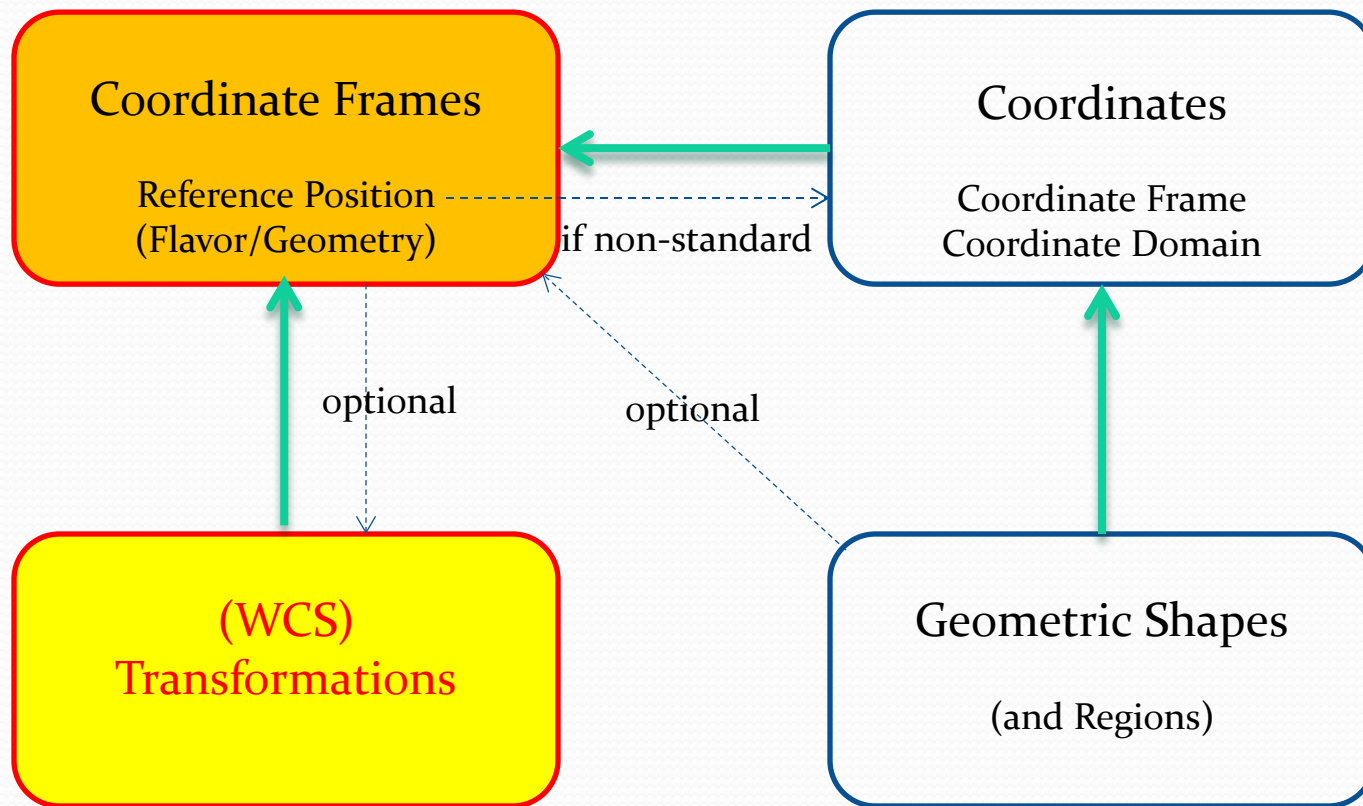


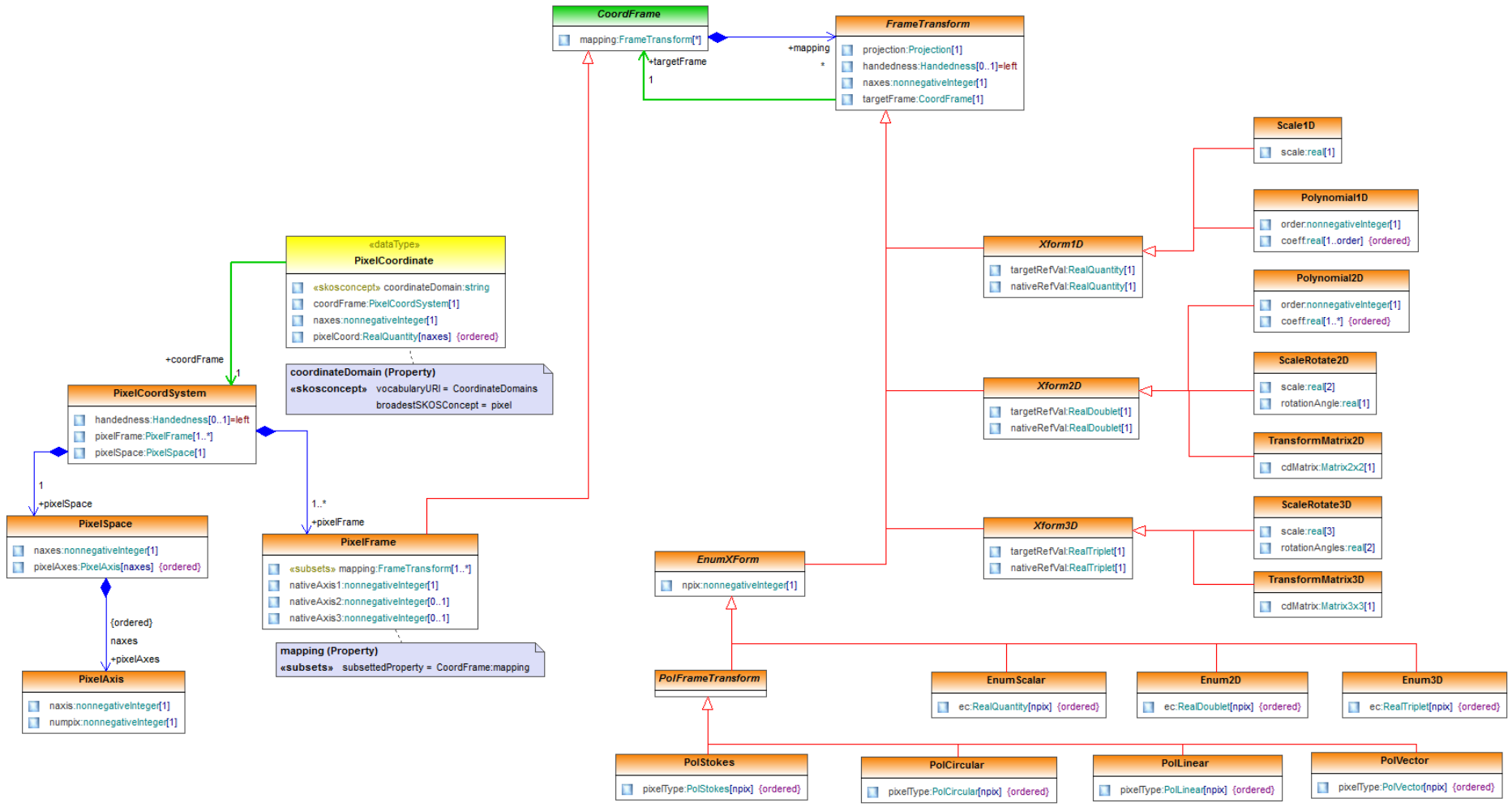
Arnold Rots
SAO/CXC

Transforms in STC2

- Transforms are integral parts of coordinate frames
- Based on FITS WCS specification
 - Contain equivalents of the familiar FITS keywords
 - Extensions allow atomic transforms
- Pixel frames to WCS frames
- Between physical coordinate frames
 - Owned by native frame, point to target frame
 - Multiple transforms allowed (FITS alternate coord frames)
- Enumerations
 - Applies to polarization
 - Accommodates sparse data such as photon event lists

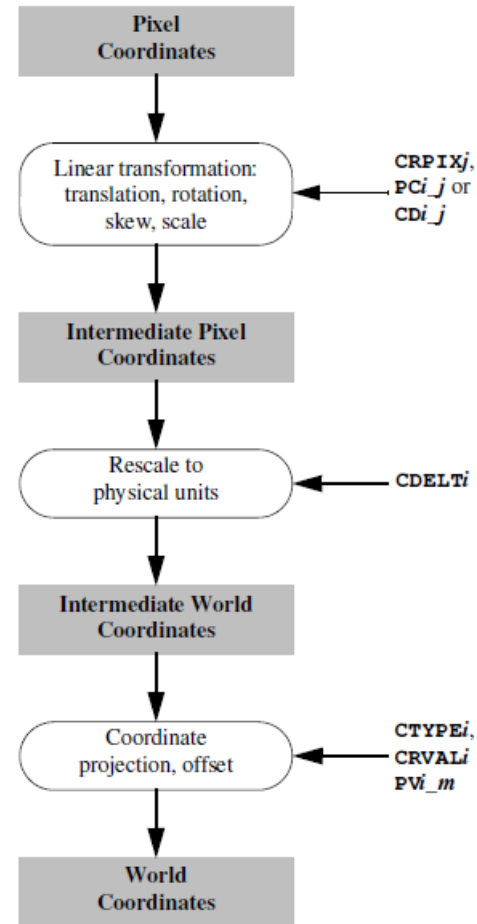
STC2 Packages





FITS WCS Transforms

- A single set of keywords effects a transform from Pixel Coordinates to World Coordinates
- It implies a minimum of three atomic transformations under the hood – more typically five



Which Way to Go?

- FITS WCS model (*AHR?*)
 - Direct mapping between STC and FITS
 - Hides complexity for common transforms
 - Atomic transforms are allowed as well
 - **Lack of transparency**
- AST Atomic Transform model (*MCD, DSB*)
 - Simple model
 - Fully flexible
 - Transparent
 - **More verbose for common cases; requires intermediate frames**