Essential steps of the pointing offset correction ipipe scripts for bright point sources

**Product**

**Task**

Applied calibration product or output product from precursor task

**Task description**

Level 0.5 Frames.

Normalization of chopped on-off signal

\[ \text{norm} = \frac{2 \cdot (\text{on-off})}{(\text{on}+\text{off})} \]

**specDiffChop (normalize = True)**

Determine the absolute flux using the telescope background and OffRatio calibration product (\( \text{off}_{\text{NodA}}/\text{off}_{\text{NodB}} \)) which is calculated from dark sky calibration measurements (asymmetric chopping)

\[
\text{flux} = \frac{\text{telBack} \cdot (\text{offRatio} - 1 - \text{norm} \cdot (\text{offRatio} + 1))}{2 \cdot \text{offRatio} \cdot (\text{norm} - 1)}
\]

**specRespCalToTelescope**

Determine a time resolved \( \chi^2 \) map between the science signal and interpolated oversampled 25x25 neptune rasters (calibration product Beams)

**specDetermineChiSquare**
Level 0.5 Frames.

- **SpecPointingOffsetProduct**: Determines the jitter offsets using the gyro-propagated pointing product and the offset between the known object position and the position of the central spaxel.

- **specDeterminePreCalculatedPointing**: Determines the corresponding pointing correction factors.

- **SpecPointingOffsetProduct, Beams**

- **specDeterminePointingOffsetFromPreCalculatedPointing**: Determines a pointing offset product by searching for the best flatfield in the minimum area of the $\chi^2$ map -> general offsets (at very low time resolution with perNode option).

- **SpecChiSquareProduct**

- **specApplyPointingCorrection**: Applies the pointing correction factors to correct the flux.

- **TelBackCor**

- **specCorrectTelescopeBackground**: Minor residual corrections of the telescope background model.