SPI IMAGING

- MASK 127 Elements HURA
- Detector 19 detectors 56mm flat to flat
- Fully coded F.O.V =16 °
- Angular pixel size ~ 2°

SPI DITHER PATTERN

- The mask approach
  - Only 19 detectors
  - Dithering increases the detection plane size and "creates" virtual detectors.
  - Dithering increases the number of "independent" sky positions.
  - Dithering reduces the PSF sidelobes
  - 5x5 produces 19x25 sky pixels assuming a stable sky and a known and stable background…….
  - VALID IF STEP SIZE ~ 2°

SPI DITHER PATTERN

- The Flux reconstruction approach
    - Data = ARF*Sky + B   to be solved
    - Data (19, 25x(cycles))
    - Sky (Nsources, time intervals ?)
    - B (shape(max 19), time intervals ?)

    - Easy to have more unknowns than independent equations

SPI DITHER PATTERN

- Sky modulation approach
    - Point sources: best modulation step is 2°
    - Diffuse emission, obviously depends on the extension. 5x5 is +/- 4 °: it is a quite small compared to the scale of the structures
    - 5x5 (2° step) is the "minimal" modulation for diffuse emission.

SPI DITHER PATTERN

- Hexagonal pattern usage:
  - Single source in the FOV
  - No diffuse emission
  - Hex usage for complex FOV (G.C.) is incompatible with SPI
- 5x5 is the nominal SPI observation mode

- Patterns with steps < 2° do not help
- Patterns with steps > 2° can help for the diffuse emission