# Confusion limit in the Galactic Center

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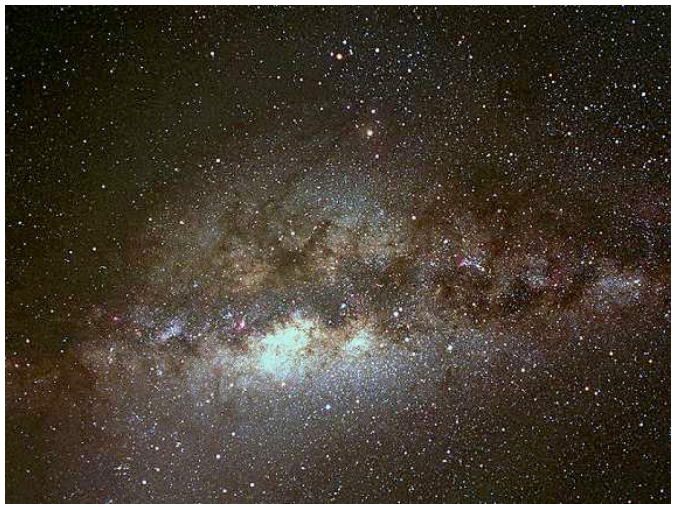
## Why the GC is interesting ?



Stellar population

Paradox of Youth

Central Black Hole : SagA*

-> Need for a new instrument : GRAVITY

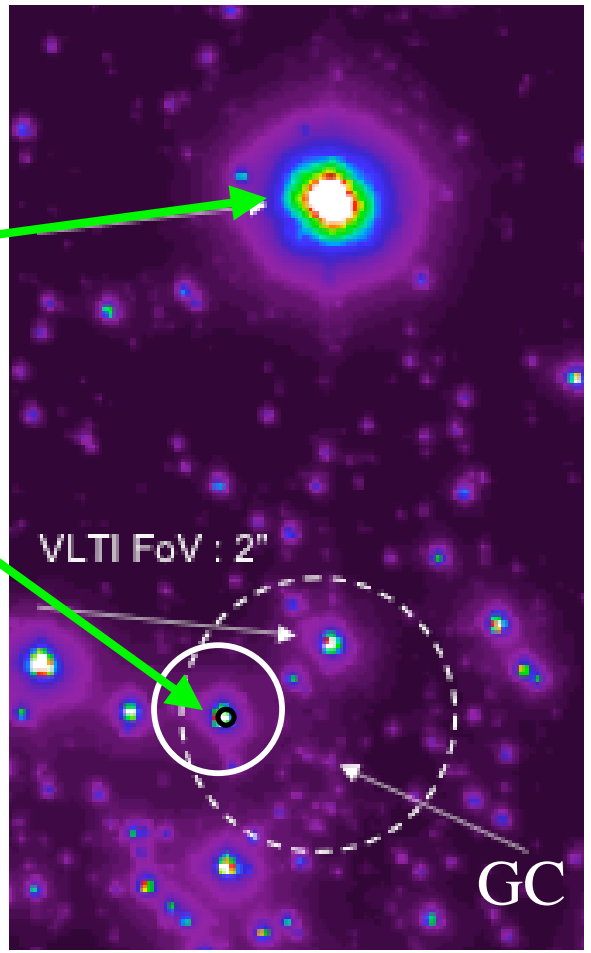
# Observing the Galactic center requires phase referencing

**Main Objective :**
**Search for a good phase reference star for GRAVITY**

**Is IRS16 C asymmetric ?**

**What influence its neighborhood will have on the observation ?**

**What would be the confusion limit ?**

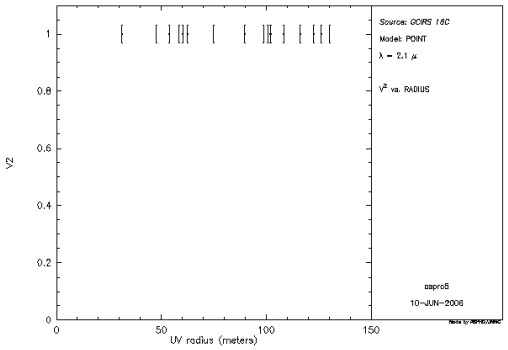


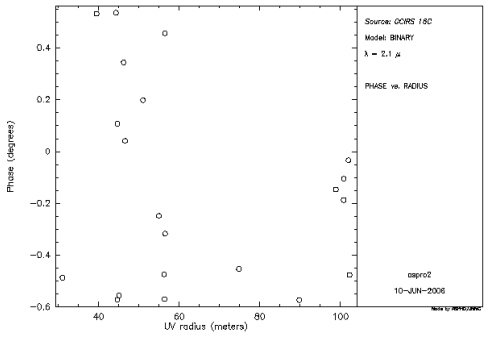
# Required configurations

- VLTI Configuration :
  - UT1-UT3-UT4
  - 5x3 Visibility measurements from –4HA to 4HA.
- Instrument configuration :
  - AMBER 3T
  - Low resolution mode
  - Required relative accuracy on phase : 0.5 degree.
- Observation epoch :
  - From 1th March to 1th August

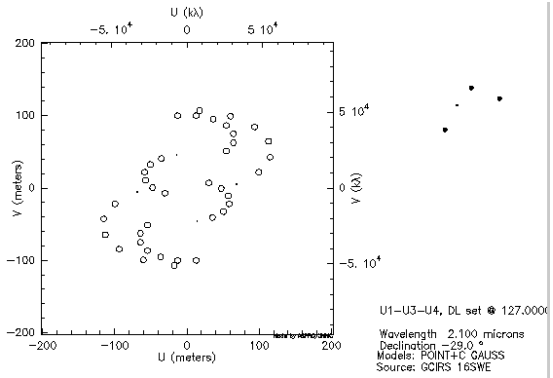
# Technical Feasibility

## Confusion effect simulation



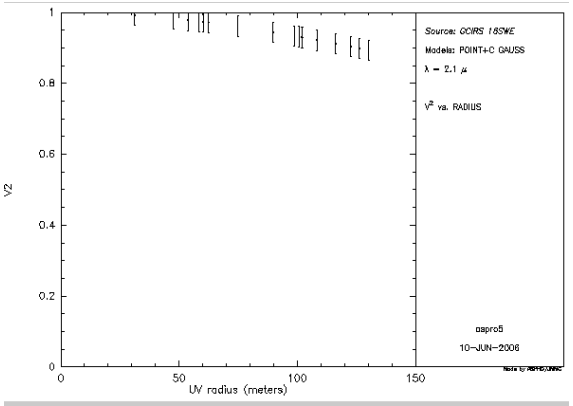




1% flux due to confusion = 0.5 degree rms error on the phase

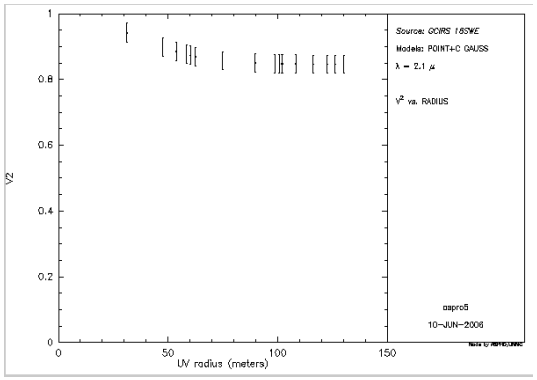



• UV plane coverage

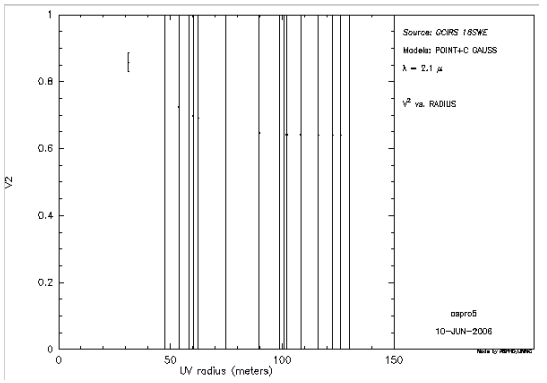
## Wolf-Rayet simulation




•High stellar to Circumstellar flux ratio (0.8)
•Close circumstellar halo (3 mas)




•Low stellar to Circumstellar flux ratio (0.92)
•Extended circumstellar halo (30 mas)




•High stellar to Circumstellar flux ratio (0.8)
•Extended circumstellar halo (30 mas)
=> Limit of detectability

# Calibrators

- Visibility calibrator:
  - HD 165634 K=2 mag; d=1.953 mas
  - HD 173300 K=3.2 mag; d=0.651 mas
- MACAO guide star :
  - UNSNOA2.0 0600-28579500
    - B = 15.2 mag, but V= ?
      - » => need to talk to an operator.