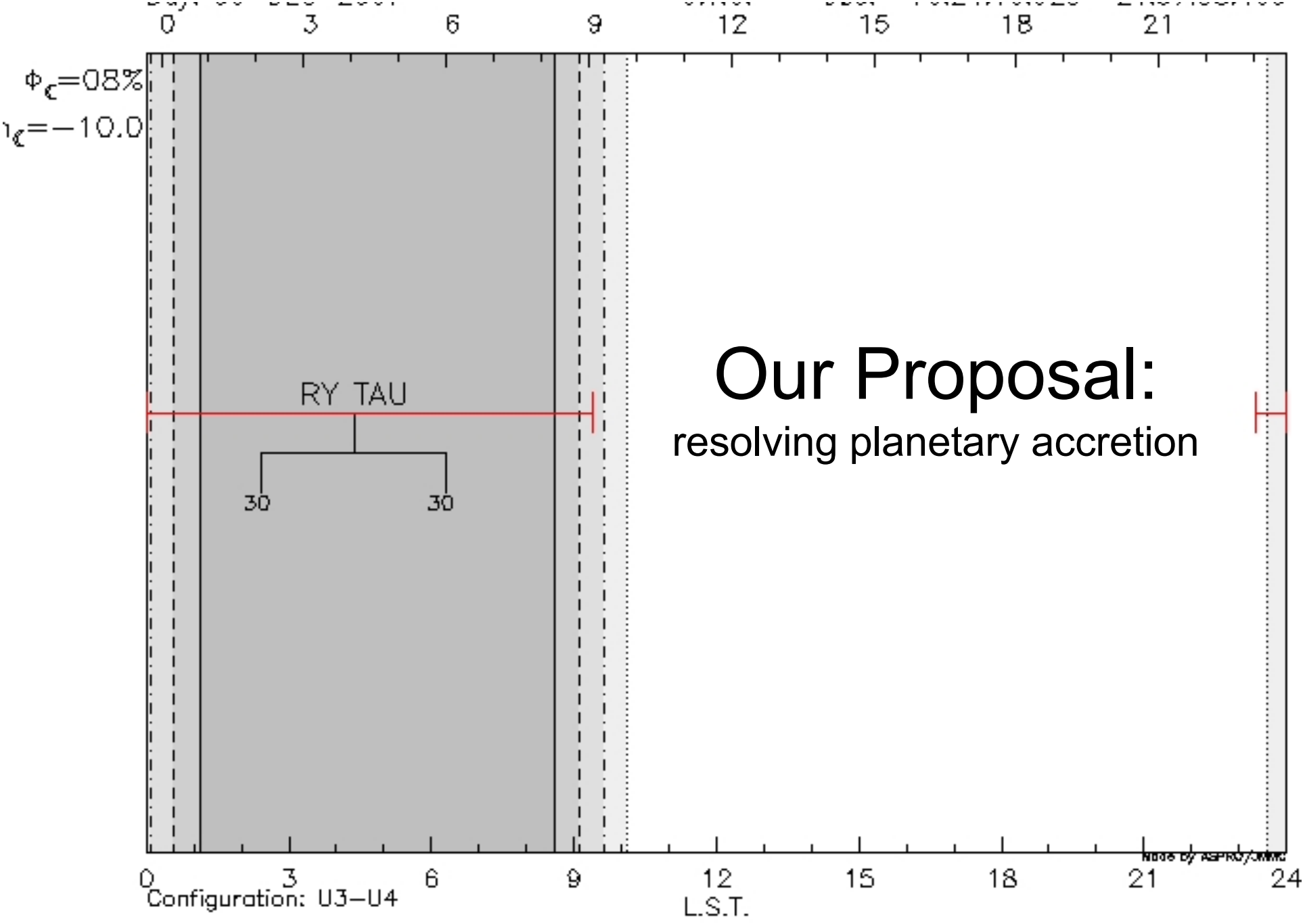
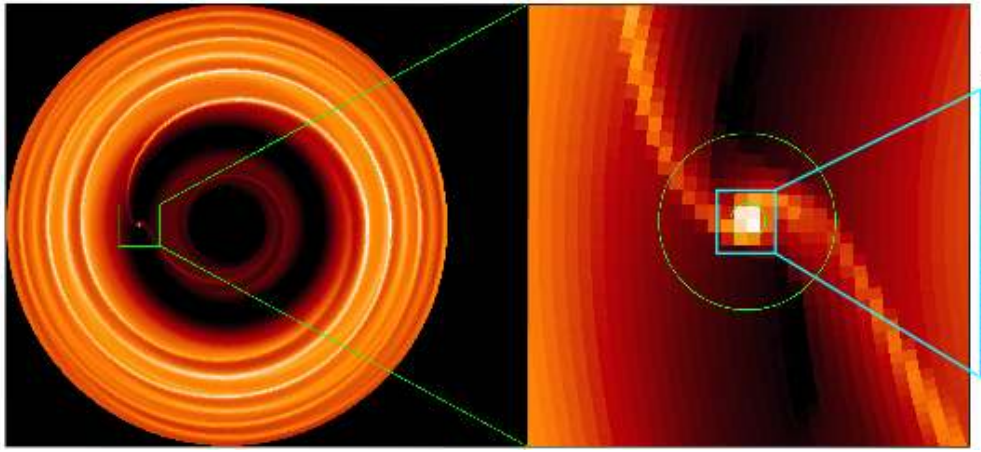


Our Proposal:

resolving planetary accretion

What



[D'Angelo et al. 2002]
[Wolf & D'Angelo 2005]

(from S. Wolf's presentation)

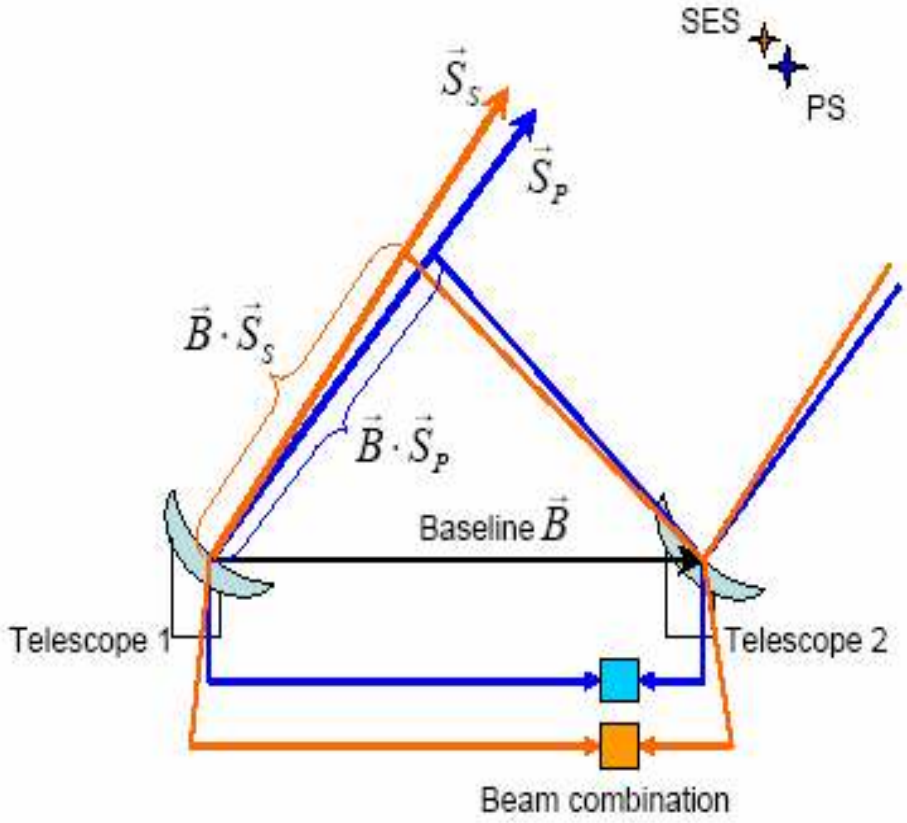
- Simulations show that accreting planets can be detected
- Aim: detect planetary accretion region in disk around RY Tau (d=135 pc, R_star=0.013 AU, R_disk=100AU)

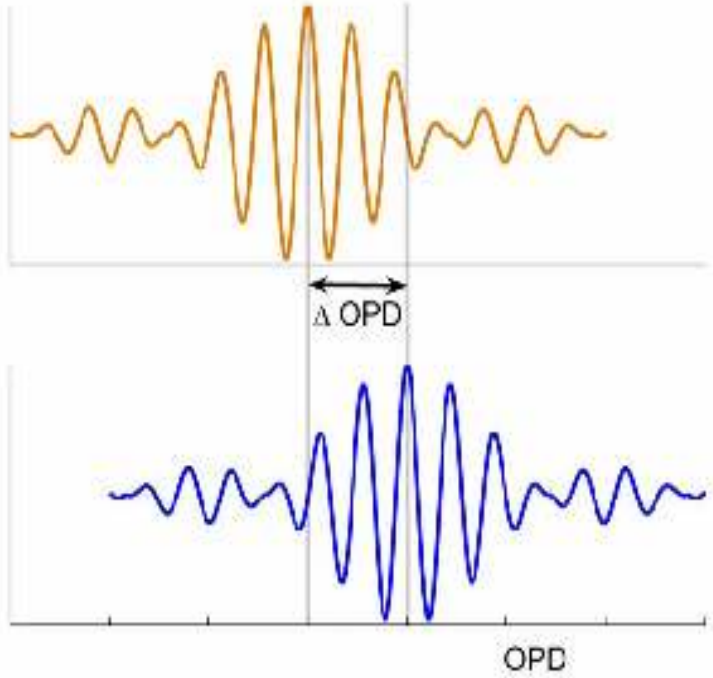
Why

- Exciting science, planets are fancy!
- Observational confirmation of simulations
- Or putting constraints on their results

Johannes his manhattan2 accelerometers

How

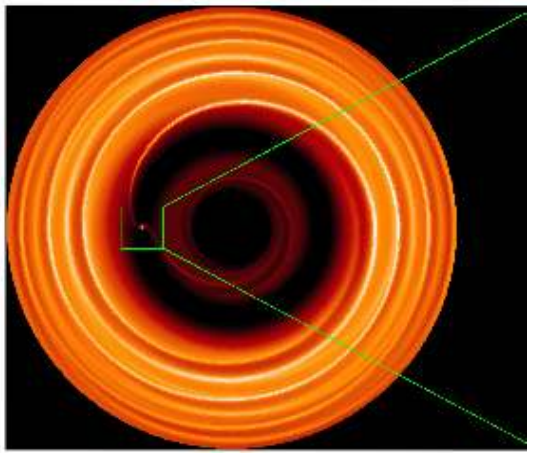


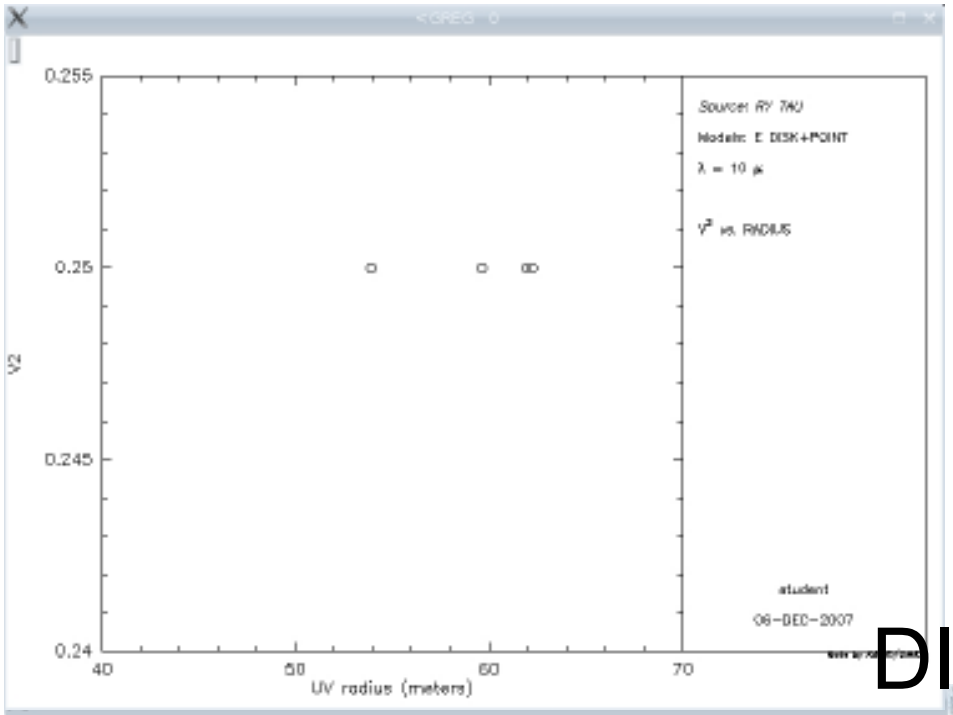


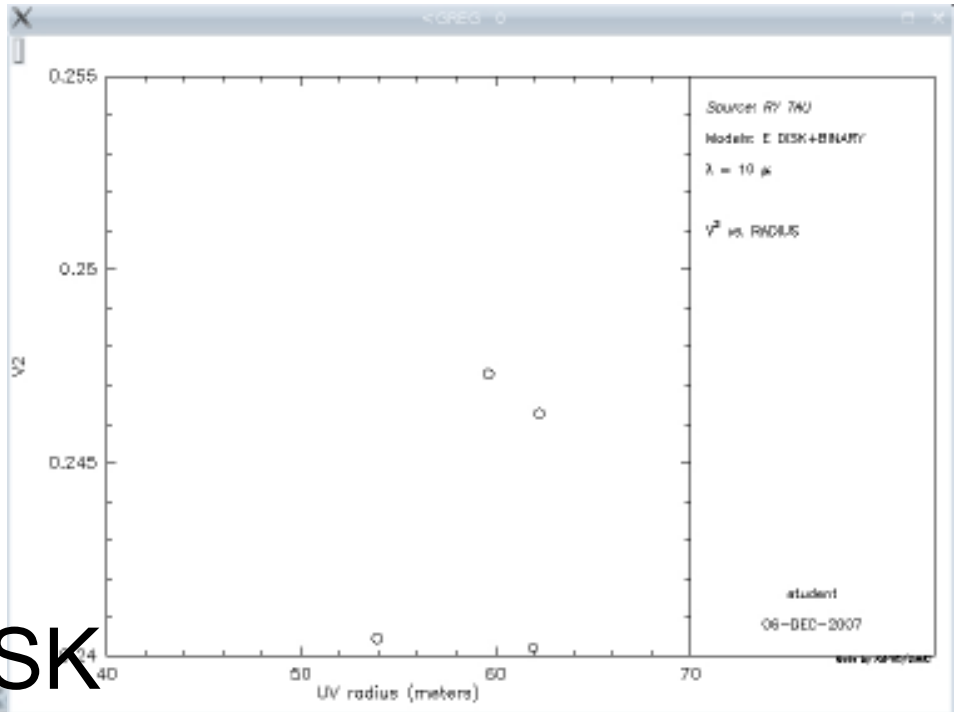
And then

- Compare results with simple model
- elliptic disk or ring + central point source + companion
- Flux ratio disk(ring):star = 1:1
- Flux ratio star:companion(@5 AU) = 1:100
- R_disk=100AU
- R_ring_in=10AU R_ring_out=100AU

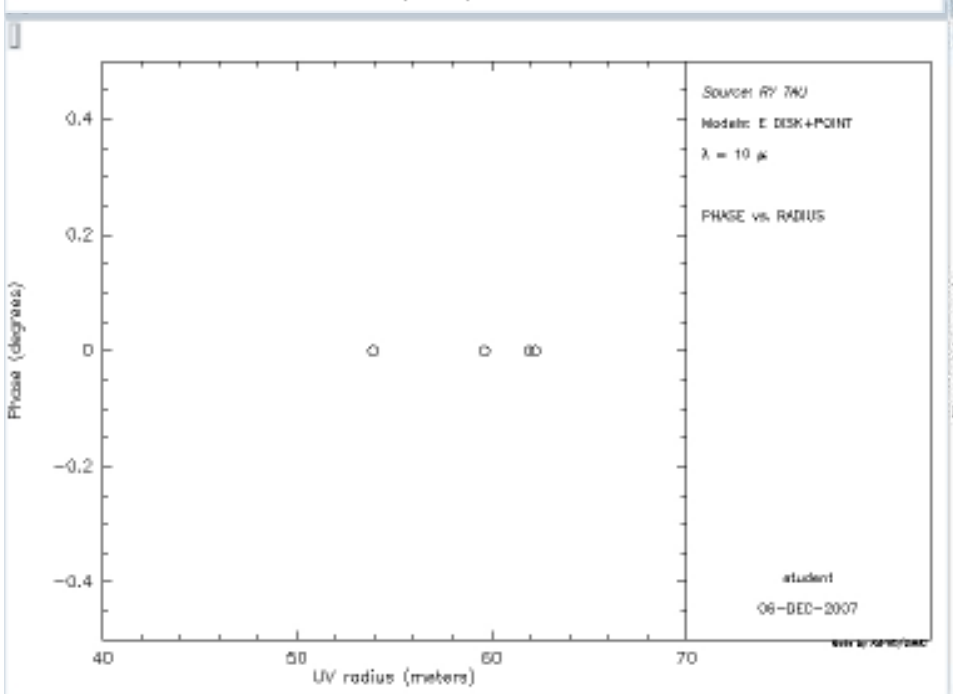
- If companion is present, we expect:
  - Very small effect on MIDI visibility
    < 0.01 (V^2)
  - Small deviation from 0 in MIDI phase:
    ~ 0.6 deg equivalent ~λ/500 !
  - Smaller effects for ring than for disk

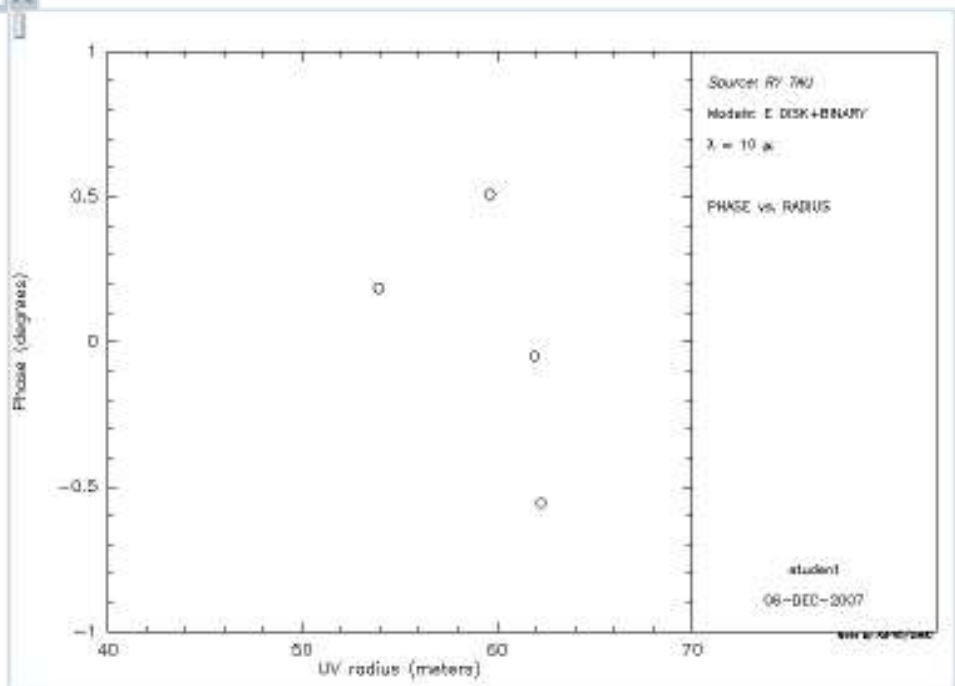


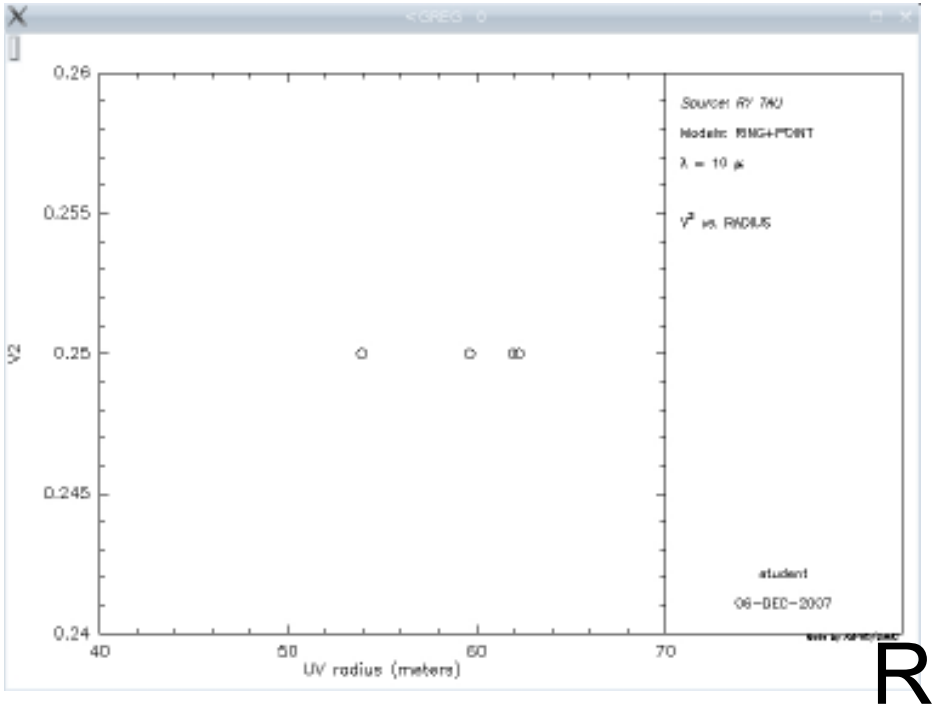

Source: RY TAU
Model: E DISK+POINT
λ = 10 μ
V² vs. RADIUS
student
06-DEC-2007
V2
UV radius (meters)
0.255
0.25
0.245
0.24
40
50
60
70

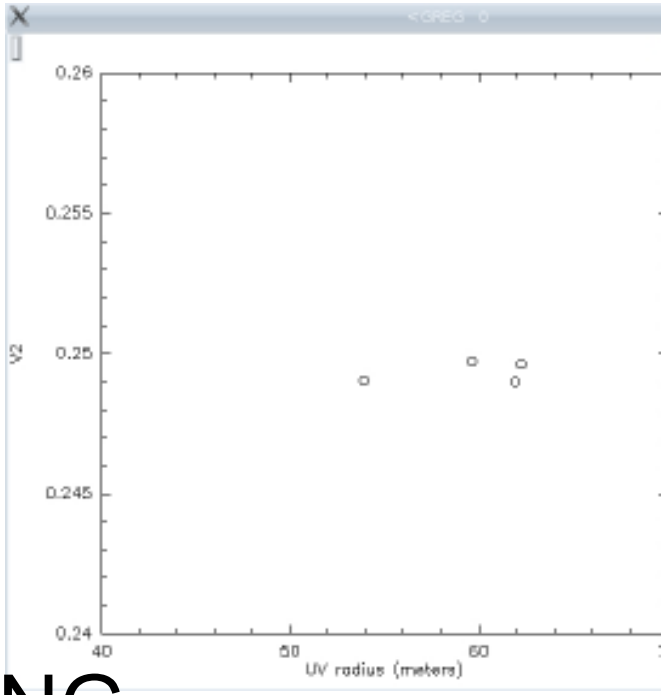

Source: RY TAU
Model: E DISK+BINARY
λ = 10 μ
V² vs. RADIUS
student
06-DEC-2007
V2
UV radius (meters)
0.255
0.25
0.245
40
50
60
70

DISK

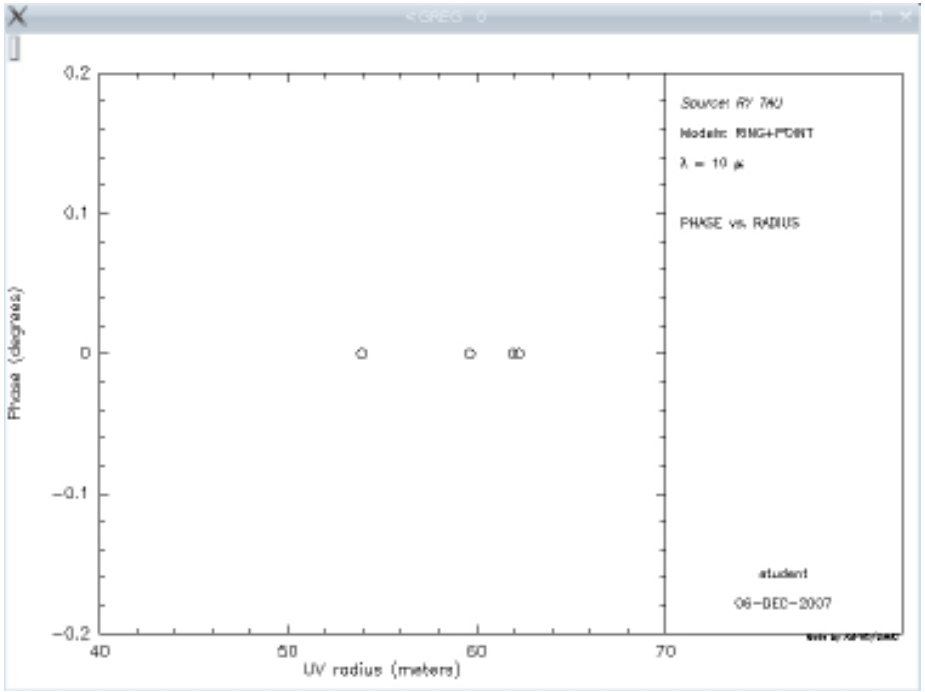

Source: RY TAU
Model: E DISK+POINT
λ = 10 μ
PHASE vs. RADIUS
student
06-DEC-2007
Phase (degrees)
UV radius (meters)
0.4
0.2
0
−0.2
−0.4
40
50
60
70

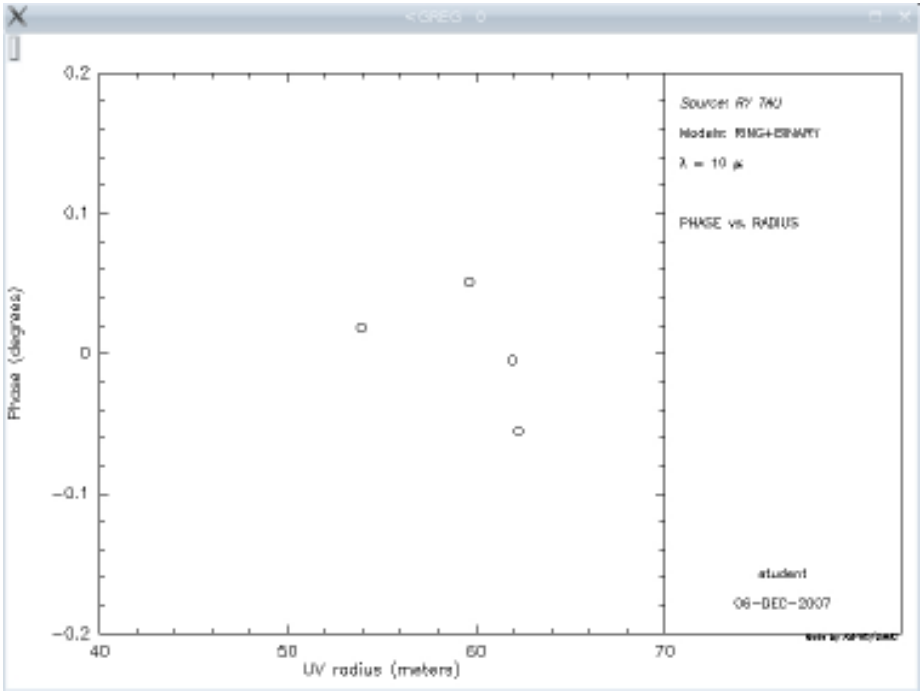

Source: RY TAU
Model: E DISK+BINARY
λ = 10 μ
PHASE vs. RADIUS
student
06-DEC-2007
Phase (degrees)
UV radius (meters)
1
0.5
0
−0.5
−1
40
50
60
70


Source: RY TAU
Model: RING+POINT
λ = 10 μ
V² vs. RADIUS
V2
UV radius (meters)
student
06-DEC-2007


V2
UV radius (meters)

RING


Source: RY TAU
Model: RING+POINT
λ = 10 μ
PHASE vs. RADIUS
Phase (degrees)
UV radius (meters)
student
06-DEC-2007


Source: RY TAU
Model: RING+BINARY
λ = 10 μ
PHASE vs. RADIUS
Phase (degrees)
UV radius (meters)
student
06-DEC-2007

Who

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&

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Yes, Andres!