# Dusty envelope around $\upsilon$ Sgr

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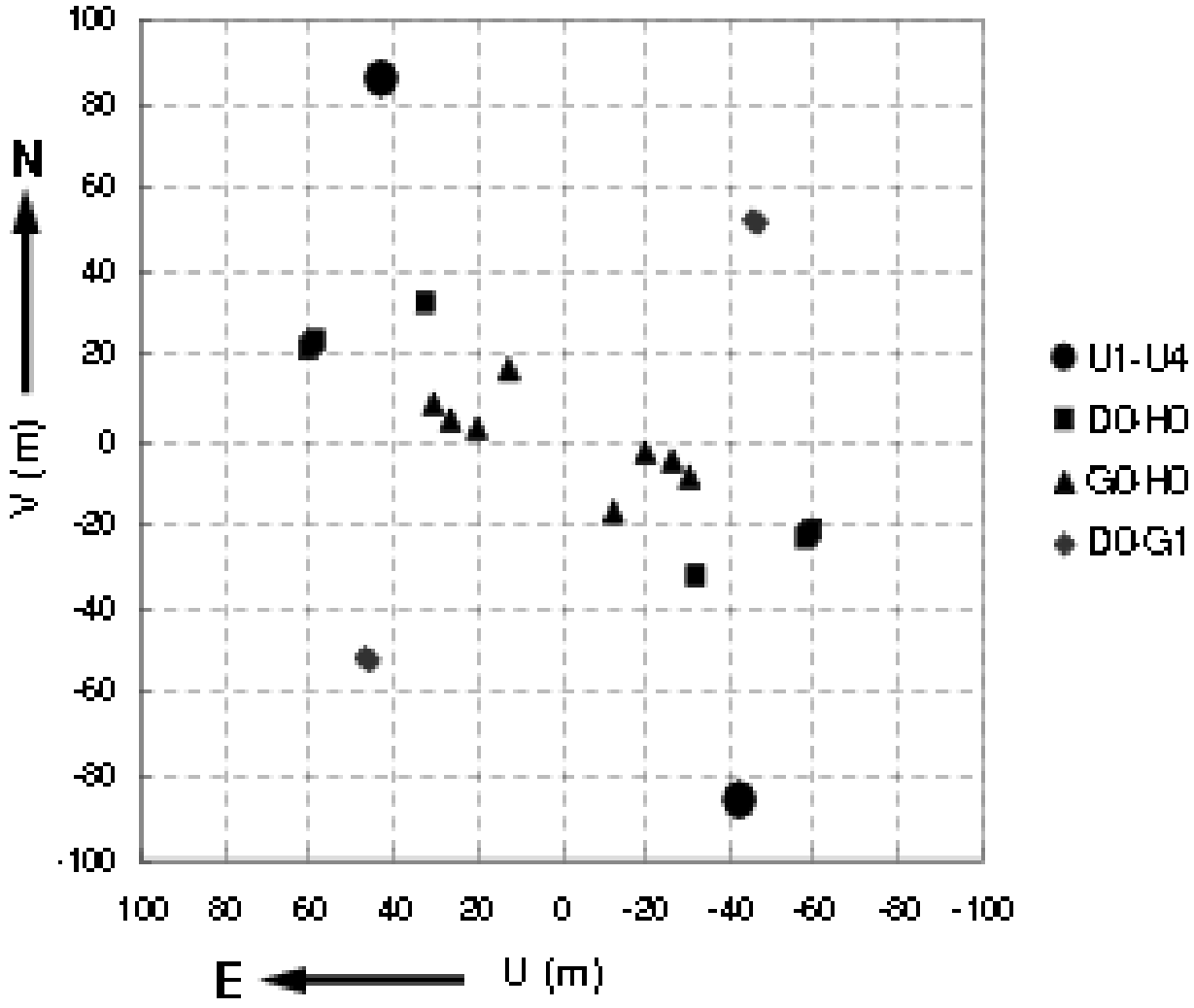
# $\upsilon$ Sgr

- HD181615, $d = 513^{+300}_{-140}$ pc
- $V = 4.6$ mag, $K = 2.6$ mag, $F_{12.5\mu\mathrm{m}} = 137$ Jy
- single line spectroscopic binary with emission lines
- evolved hydrogen-deficient binary
- 2 sets of lines in visual spectra F2+B8, share the same motion
- suspicious detection of the secondary in the IUE spectra
  $\Rightarrow$ we do not know the mass ratio
- can be a SN Ia type progenitor
- large IR excess $\Rightarrow$ presence of the dusty envelope

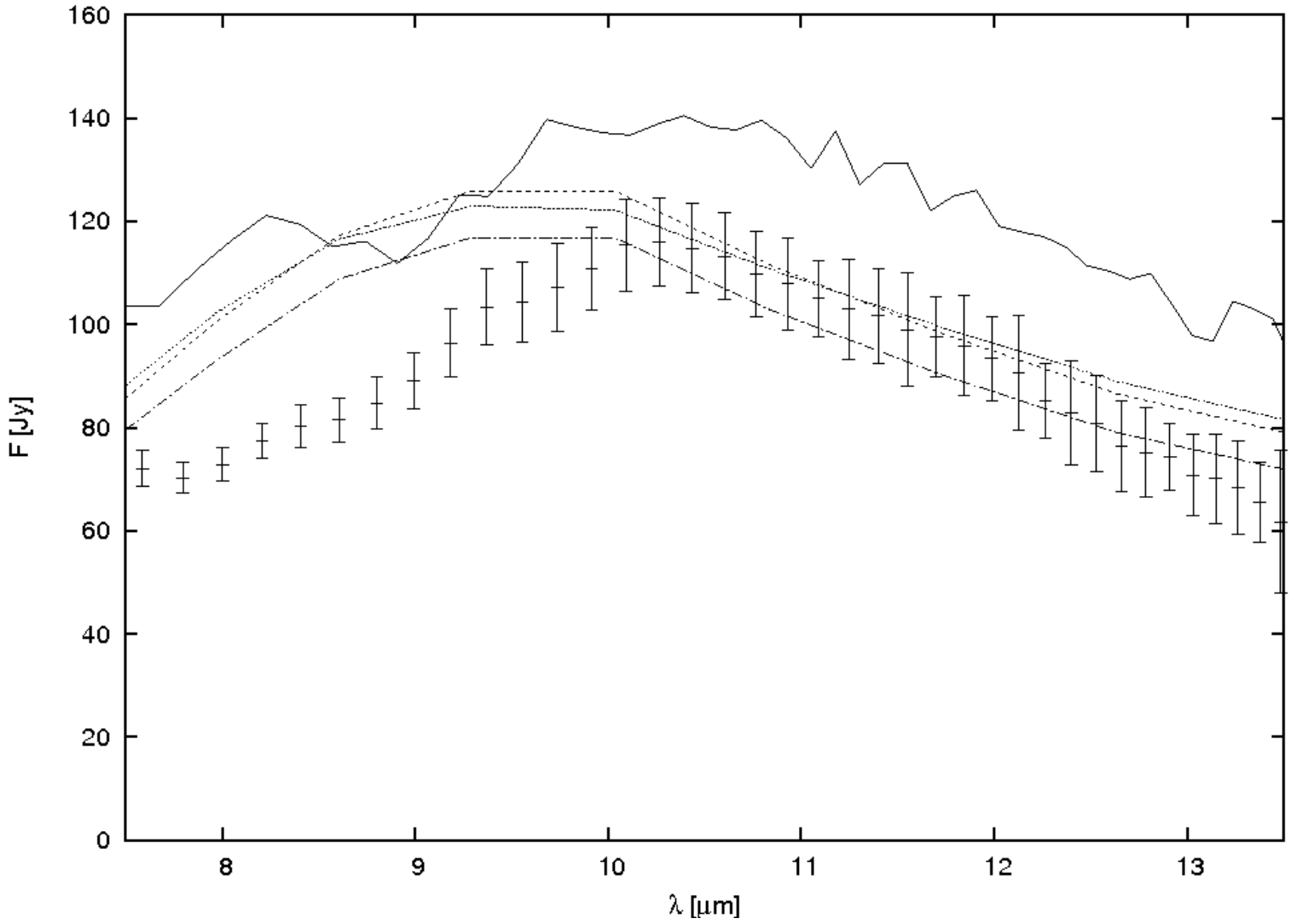
# Interferometric data

- VLTI/MIDI instrument with PRISM ($R = 30$)
- 4 baselines, 11 visibility points
  - 10 measurements with ATs (HIGH_SENS)
  - 1 measurement with UTs (SCI_PHOT)
- observational errors on V: 10 – 20 %
- modelling using MC3D code

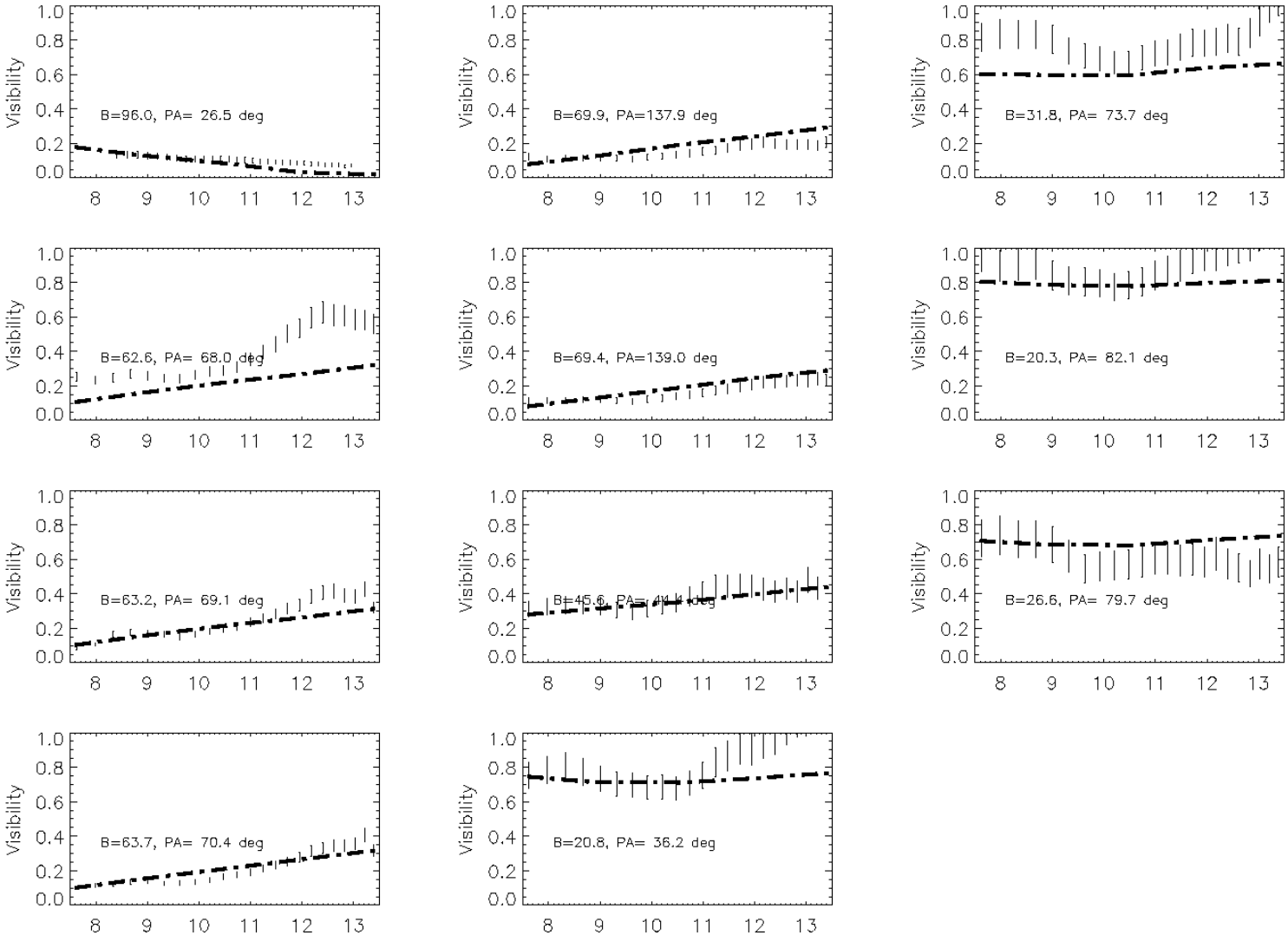
# u-v coverage


N
V (m)
100
80
60
40
20
0
-20
-40
-60
-80
-100
100 80 60 40 20 0 -20 -40 -60 -80 -100
E
U (m)
U1-U4
D0-H0
G0-H0
D0-G1

# Mid-IR spectrum



# Best visibilities fit



# Conclusion

The main results:

- the geometry of the envelope: self-shadowed disk, most probably puffed-rim
- the chemical composition of the dust (60% of the C dust, 40% of the silicate dust), which confirms the evolutionary status
- the orientation of the envelope ($i = 40° \pm 15°$, P.A. $= 70° \pm 15°$, which is useful for further observation

The future plans:

- far UV spectra: very needed, but no instrument
- AMBER observation: the size and observation of the circumstellar envelope around the visible star, detection of jets