Binary stars with component disks
The case of Z CMa

By

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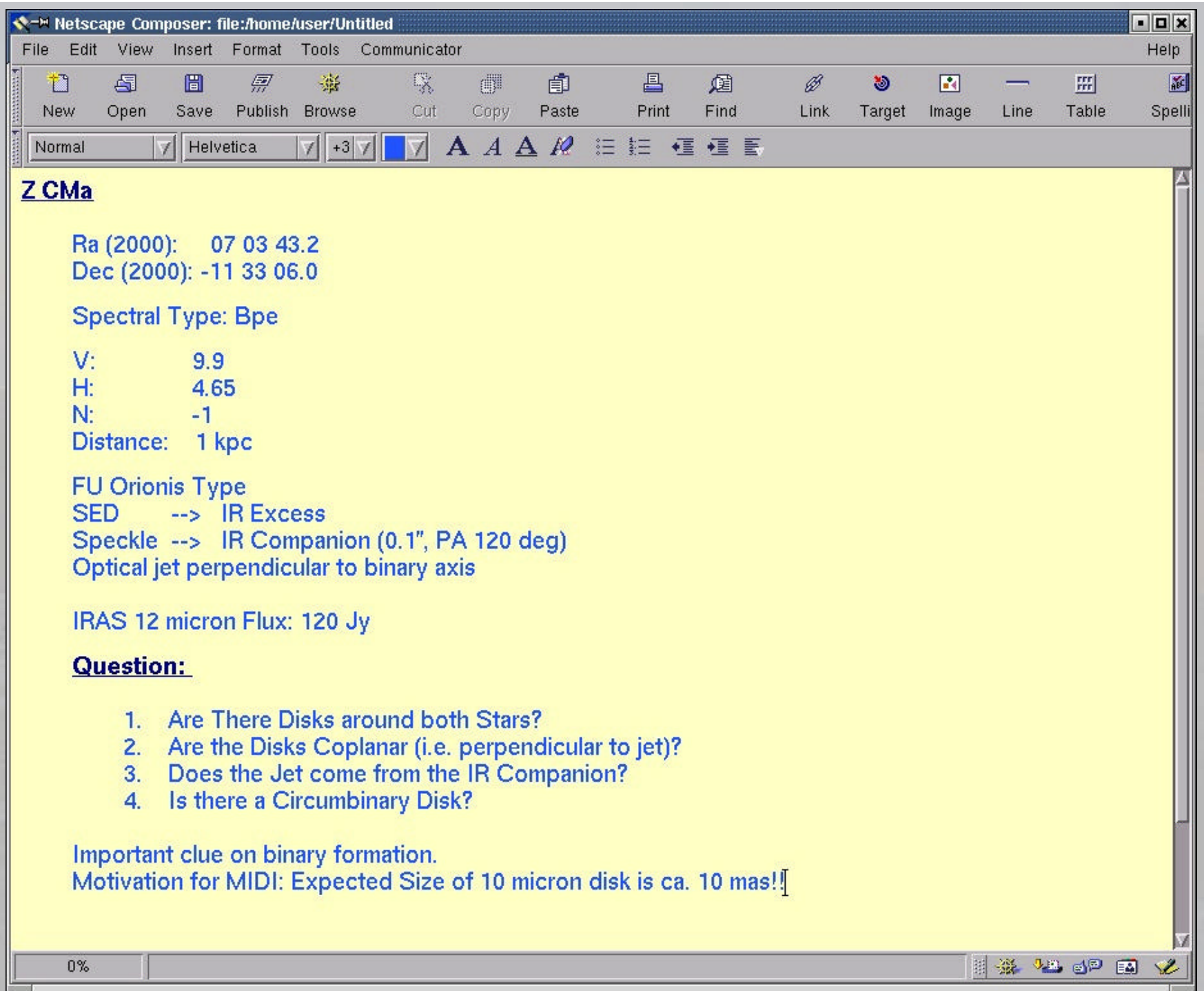
Netscape Composer: file:/home/user/Untitled
File Edit View Insert Format Tools Communicator Help
New Open Save Publish Browse Cut Copy Paste Print Find Link Target Image Line Table Spelli
Normal Helvetica +3
Z CMa
Ra (2000): 07 03 43.2
Dec (2000): -11 33 06.0
Spectral Type: Bpe
V: 9.9
H: 4.65
N: -1
Distance: 1 kpc
FU Orionis Type
SED --> IR Excess
Speckle --> IR Companion (0.1", PA 120 deg)
Optical jet perpendicular to binary axis
IRAS 12 micron Flux: 120 Jy
Question:
1. Are There Disks around both Stars?
2. Are the Disks Coplanar (i.e. perpendicular to jet)?
3. Does the Jet come from the IR Companion?
4. Is there a Circumbinary Disk?
Important clue on binary formation.
Motivation for MIDI: Expected Size of 10 micron disk is ca. 10 mas!!
0%

Netscape: <2>

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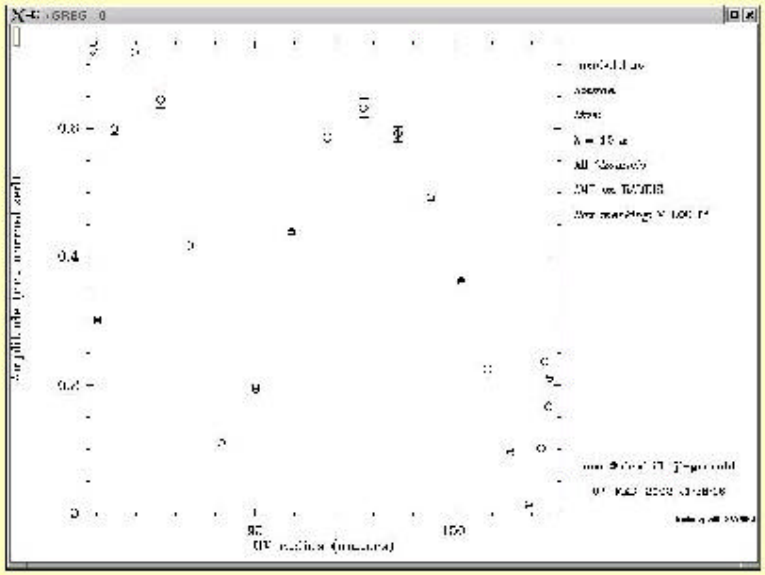
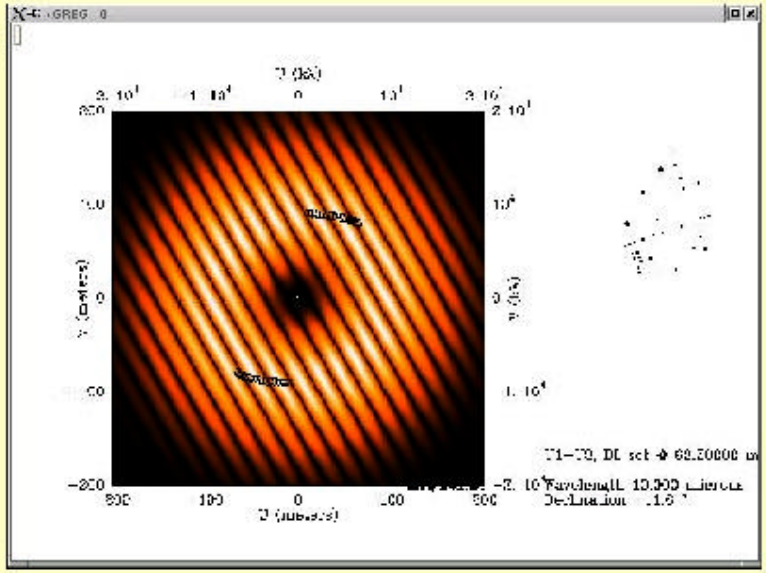
Observational Strategy

MIDI: UT1 + UT3 with baseline of 104 meters (resolution of 20 mas)
External Fringe tracking on the Source in H
Observations planned in January
Prism is applied (R=30) in order to enhance visibility contrast
Total Observation Time: 5 hrs
Fixed Delay Line: 63.5 meters
15 minutes for each point, 5% on-source time





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Interpretation

Our model consists of two Gaussian disks with equal fluxes and diameters of 12 milliarcsec separated by 0.1"

Conclusion

Based on the Aspro Error Analyses:

- The visibility can constrain the flux ratio of the two stars to a few percent
- The extension of the dust disks cannot be derived using the UT1-UT3 (orientation and length)
- Object bright enough for ATs
- The longest baseline is recommended