Near Infrared Observations of Massive Young Stars with Gemini AO

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Acknowledgements

- Peter McGregor
- Peter Conti
- Augusto Damineli
- Elysandra Figuerêdo
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- Alessandro Moisés

Adaptive Optics, Lasers, & IFUs

- Deployed on Keck, VLT, and Gemini

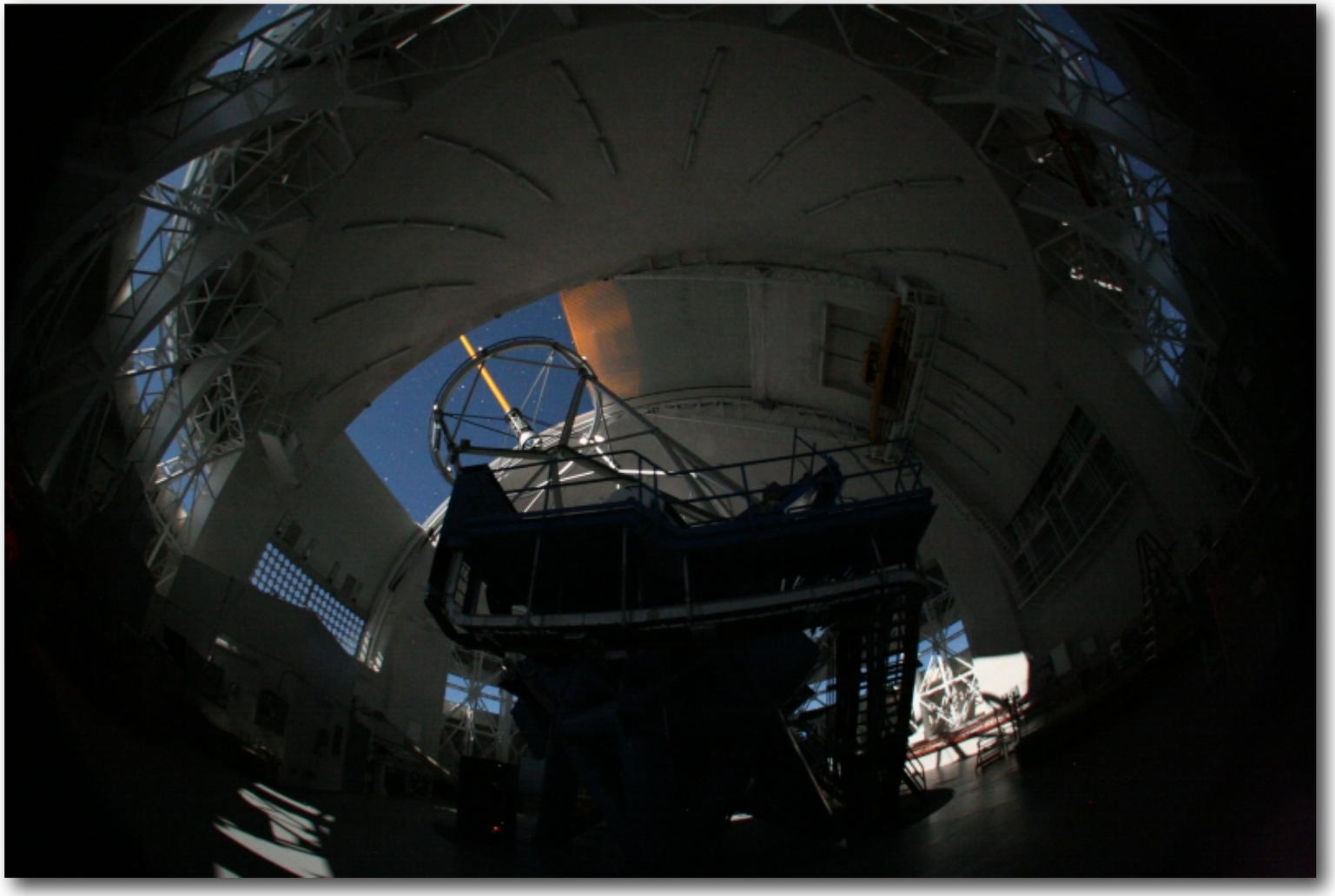
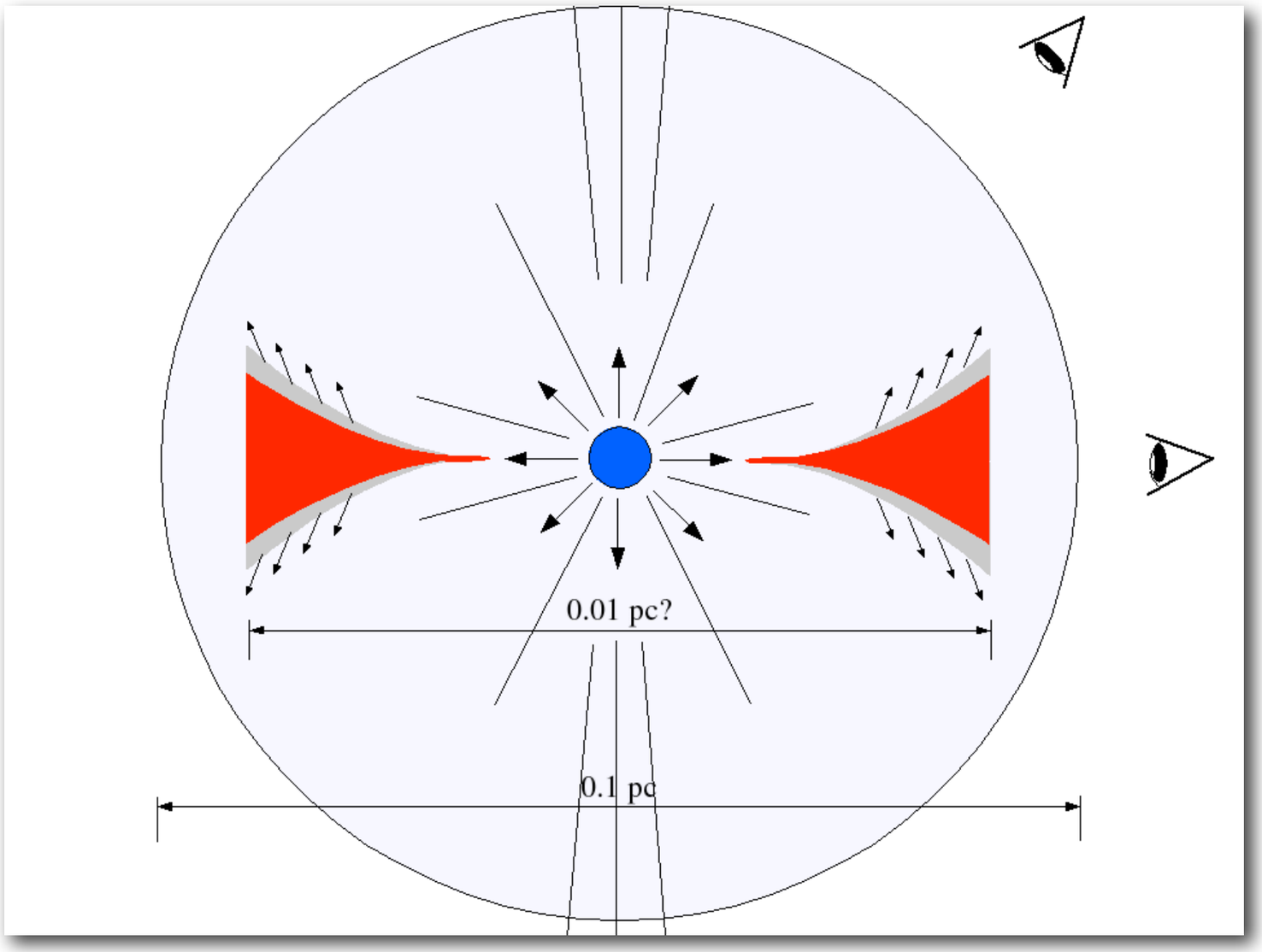


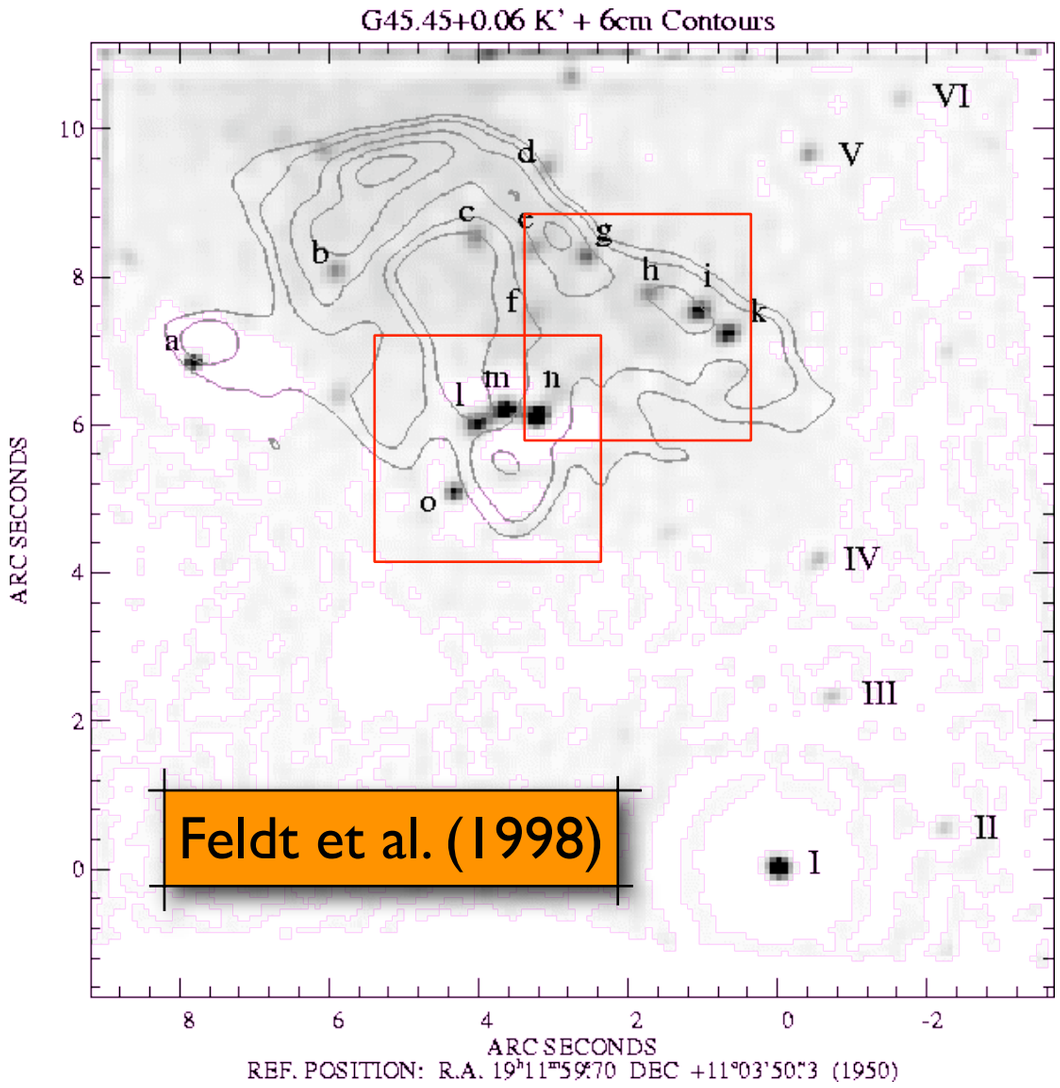
Photo credit: Paul Hirst, Gemini Observatory

NIFS/ALTAIR

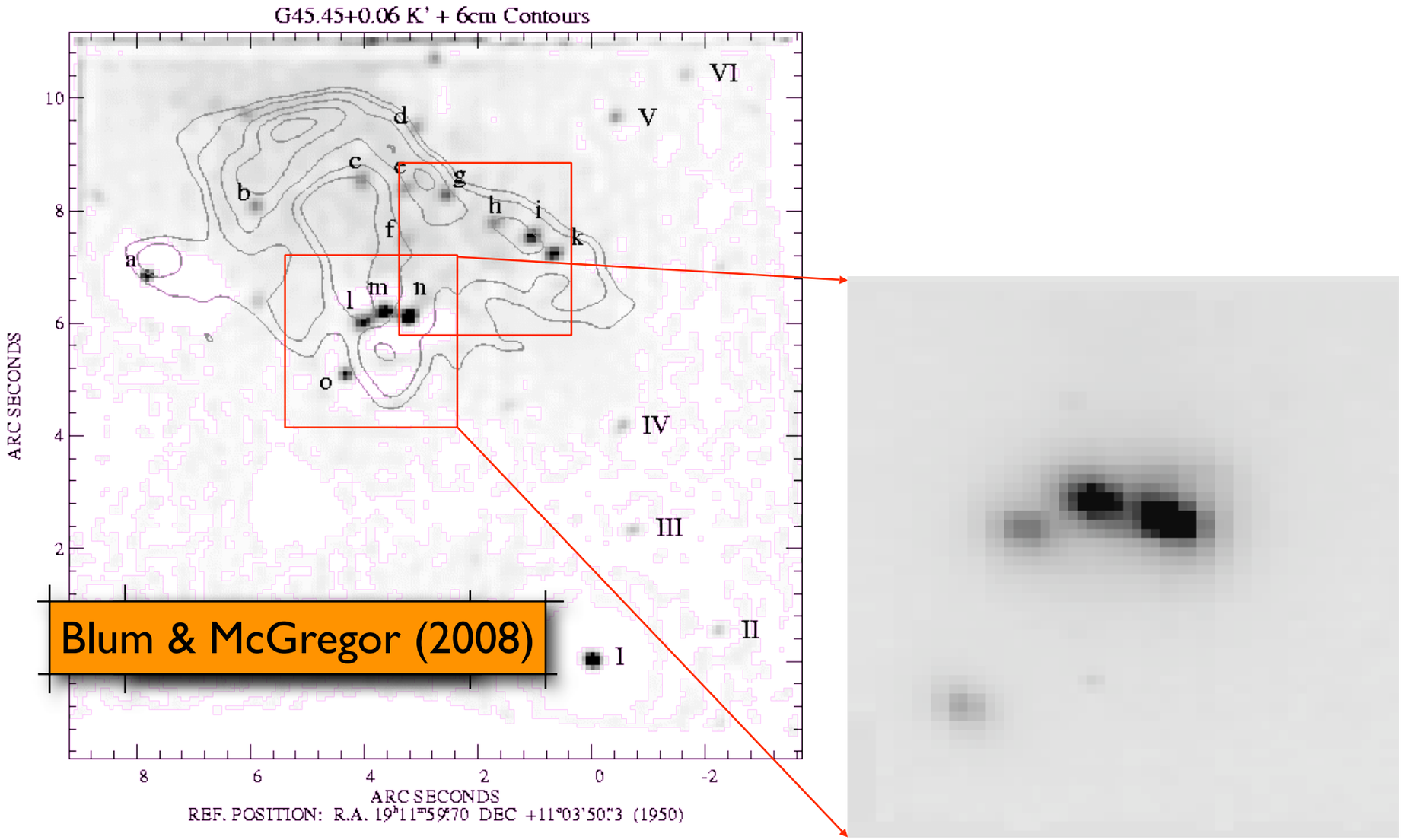


- NIFS IFU
  - 3"x3"
  - 0.048" x 0.1"
  - 29 slices
- ALTAIR
  - 177 Actuator SH
  - NGS
  - LGS

NIFS/G45.45+0.06



NIFS/G45.45+0.06



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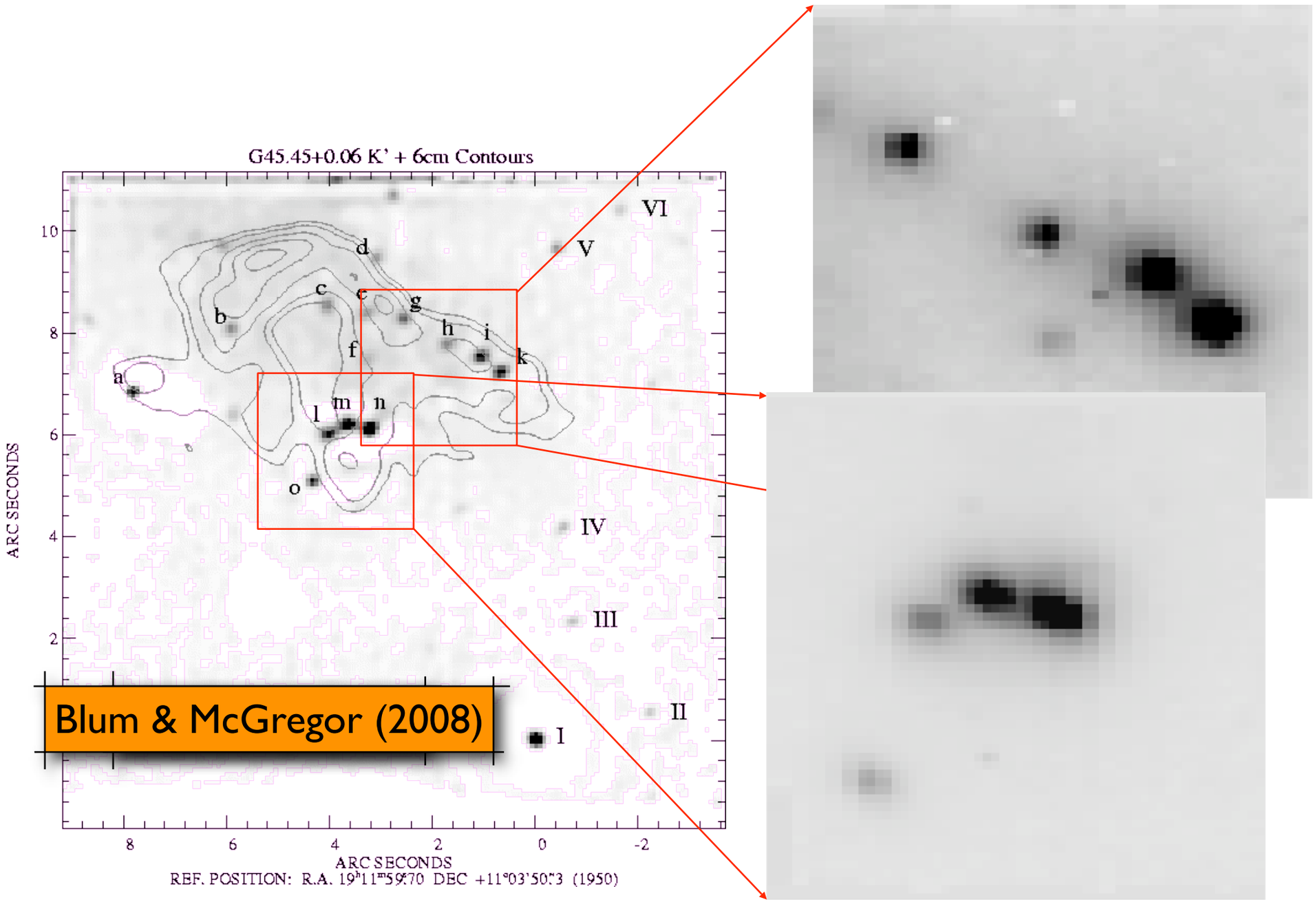
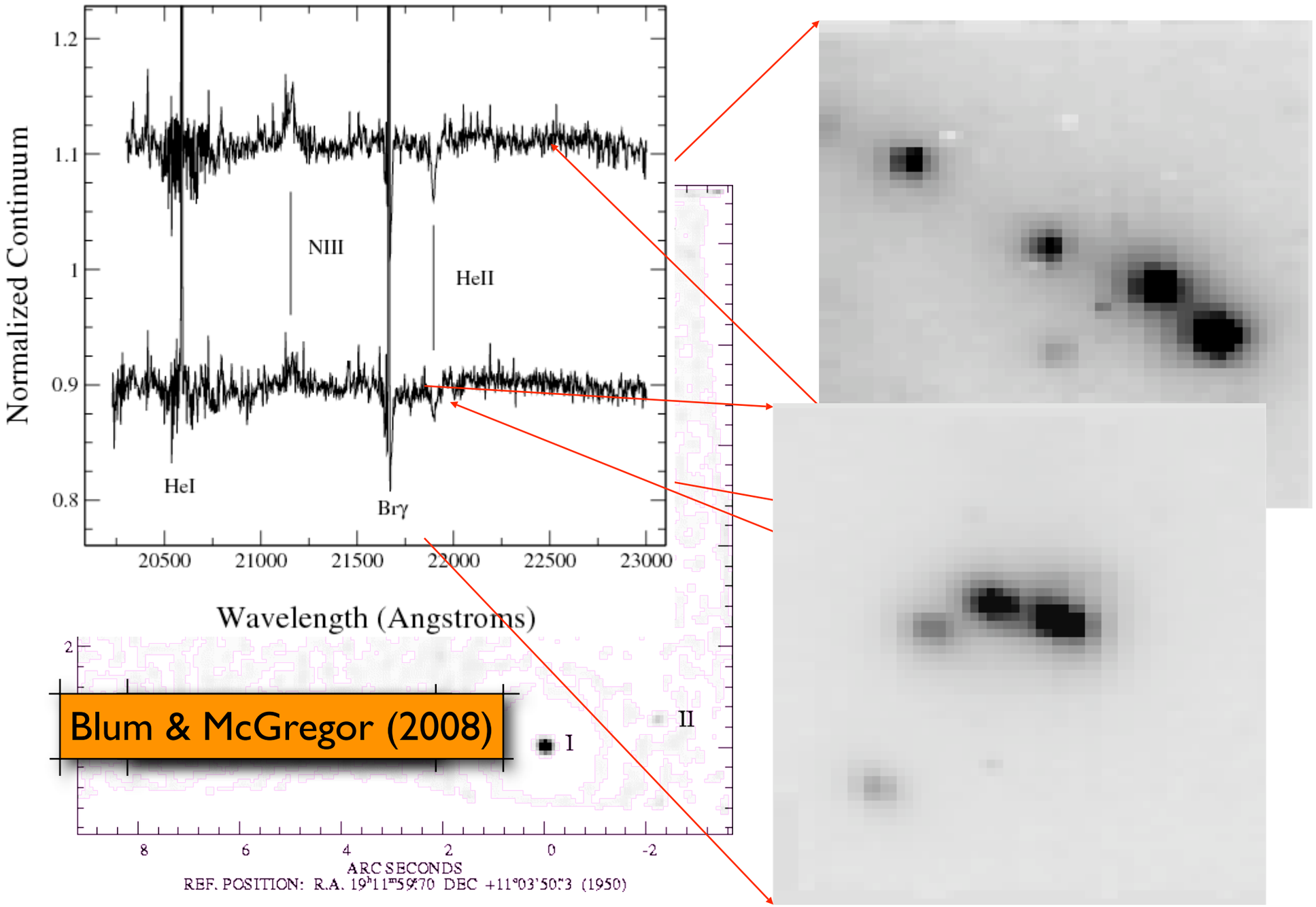
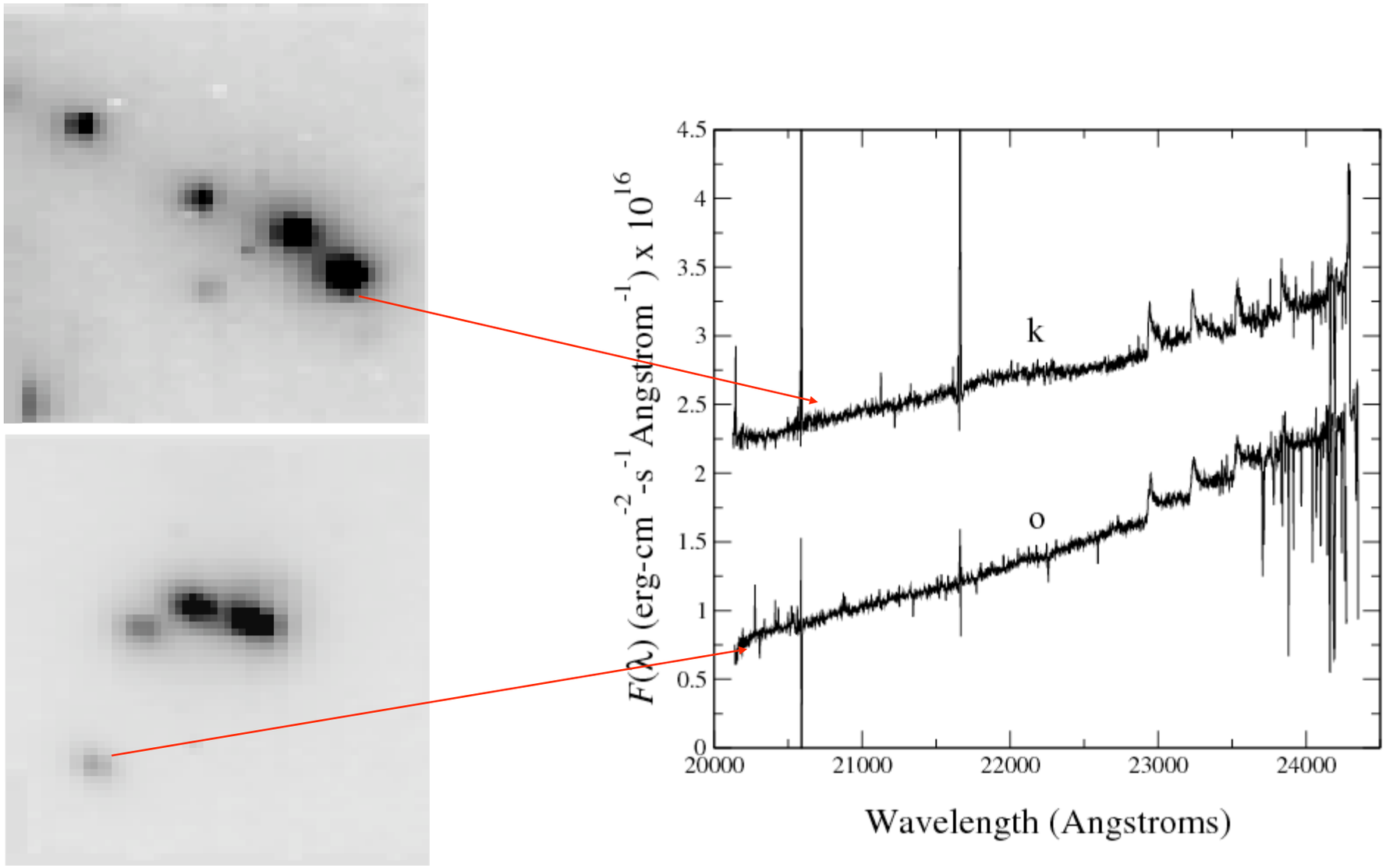


NIFS/G45.45+0.06

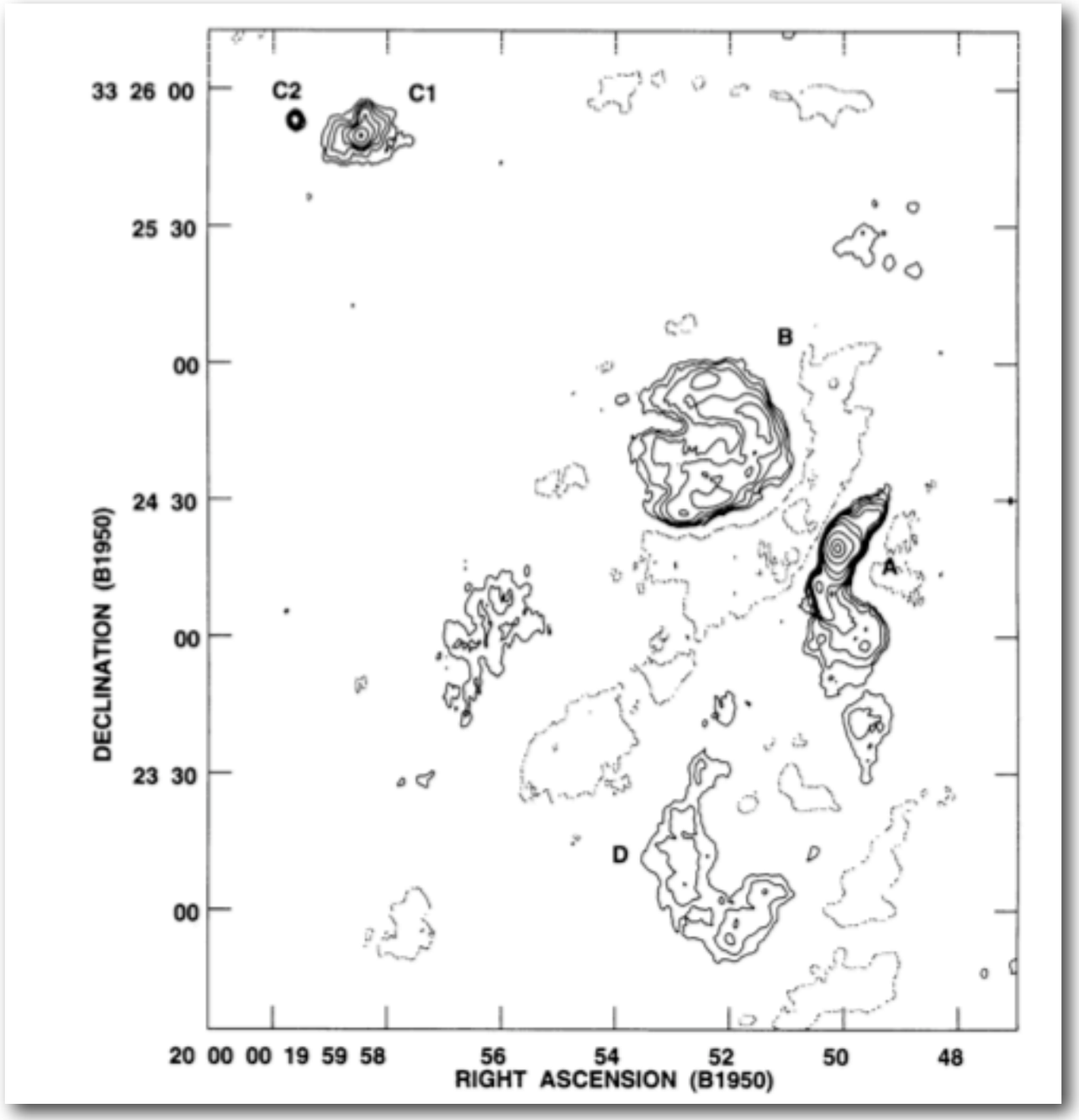


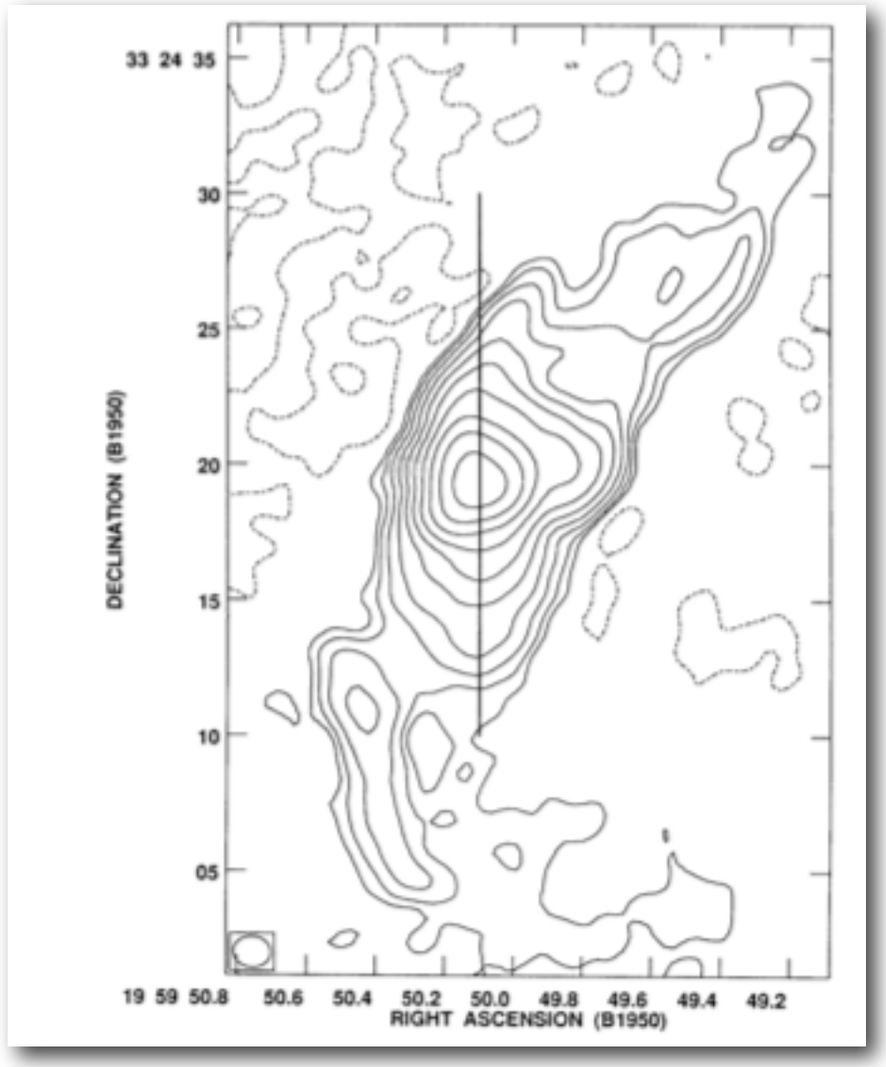
Blum & McGregor (2008)

NIFS/G45.45+0.06



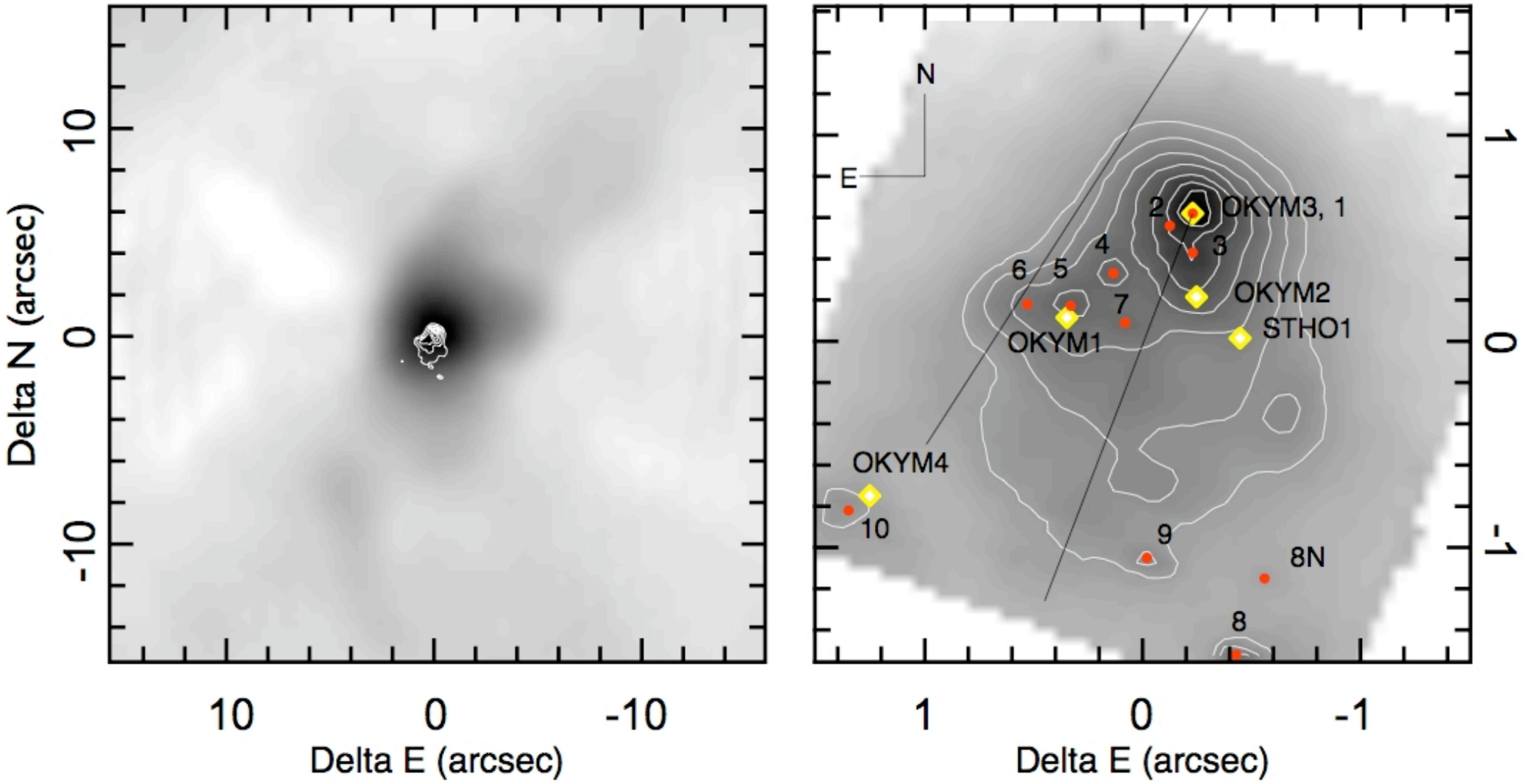
K3-50 A/Radio





De Pree et al. (1994)

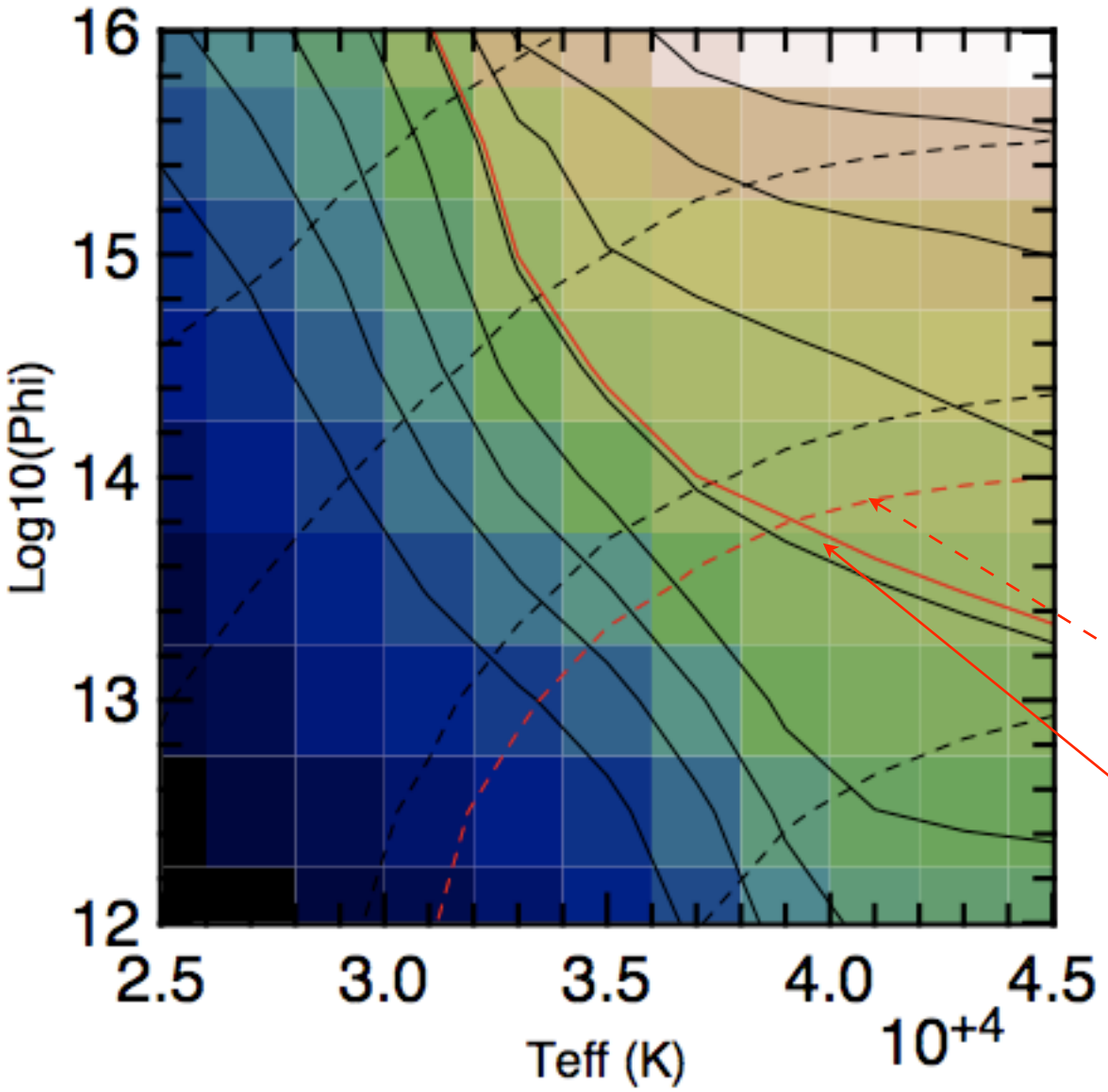
K3-50 A/NIFS



- OKYM3 dominates, point like but confused, OKYM4 resolved in continuum, lines
- Resolve some continuum sources, others look like clumps, Hofmann S8,9 most compact
- Compact cluster, ALTAIR/NIRI image would be helpful
- At 7000 pc, 3" is 0.1 pc

Blum & McGregor (2009)

K3-50 A/NIFS

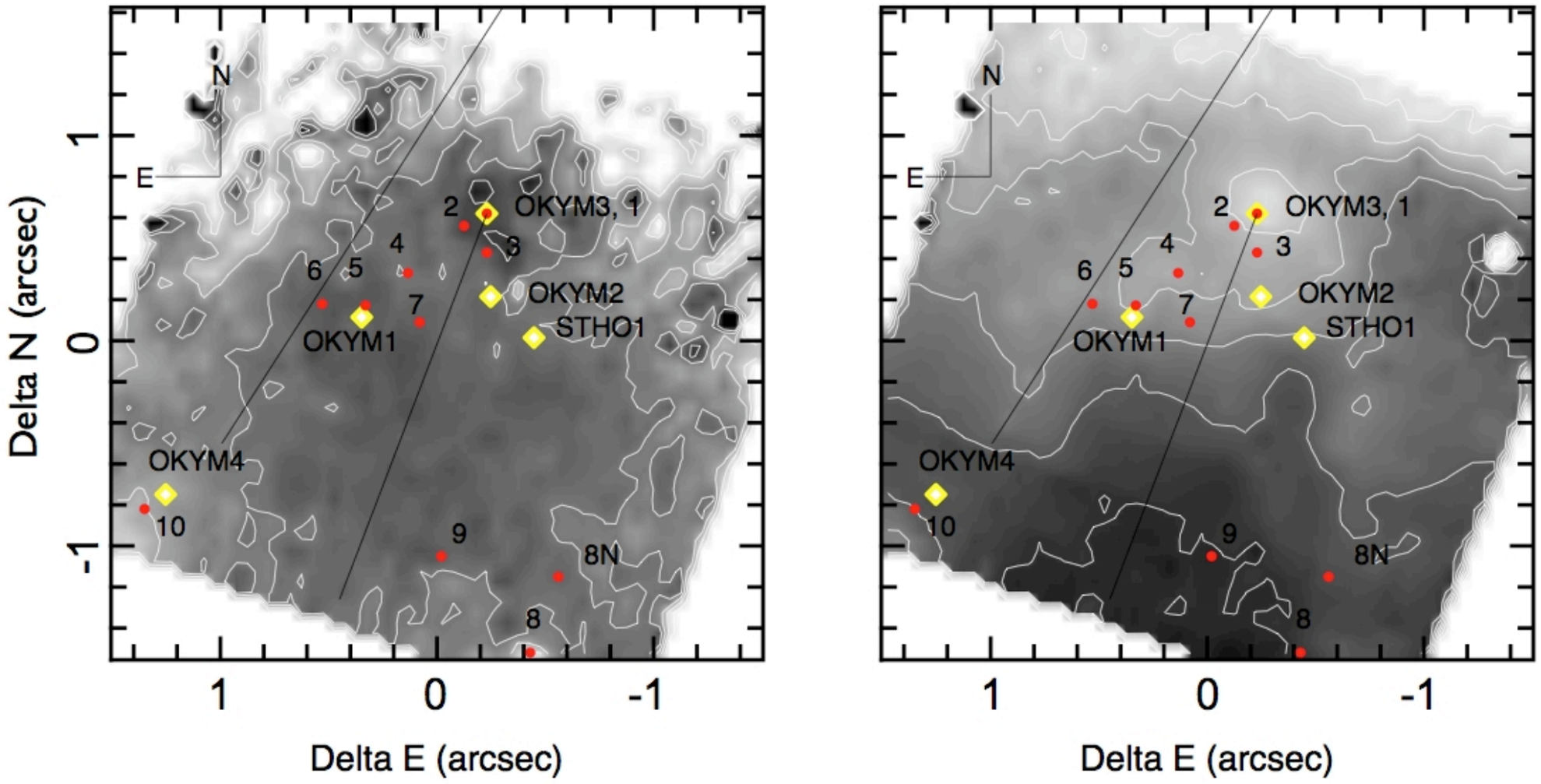


- Excitation: Cloudy ionization models
- Grid of 99 models, 10^4 cm-3
- 21127/Brg + Brg/Dust
- Vary parameters (geometry, density) - 37000 K < Teff < 45000

Brg/Dust (1.8x10-5)

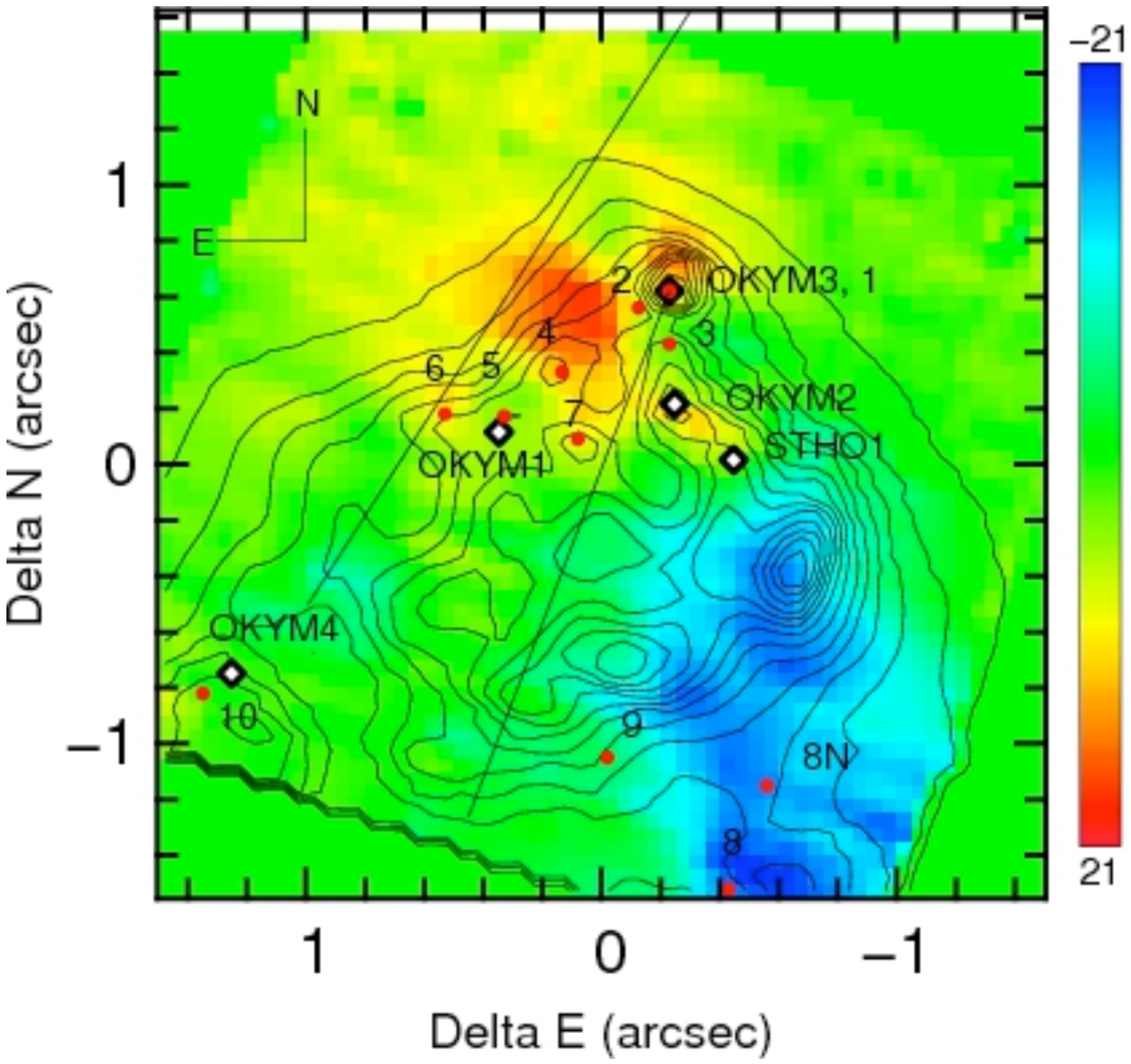
21127/Brg (0.05)

K3-50 A/NIFS



- Line Ratios to Br gamma, 21127 indicates hot star (0.04), 20587 (0.3-0.8) complicated by dust, HeI Lya fluorescence, also collisional transfer from 2^3P level
- See nebular structure. Density variations or line transfer?

K3-50 A/NIFS



- Br gamma velocity map
- Small scale lobes, not aligned with large scale radio flow, +/-25 kms (+/-6 kms for large scale flow)
- Low mass YSO outflow?
- No continuum source at point of symmetry.