

# **Search for intrinsically polarized stars in the Galactic Center**

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# Young stars in the Galactic Center (GC)

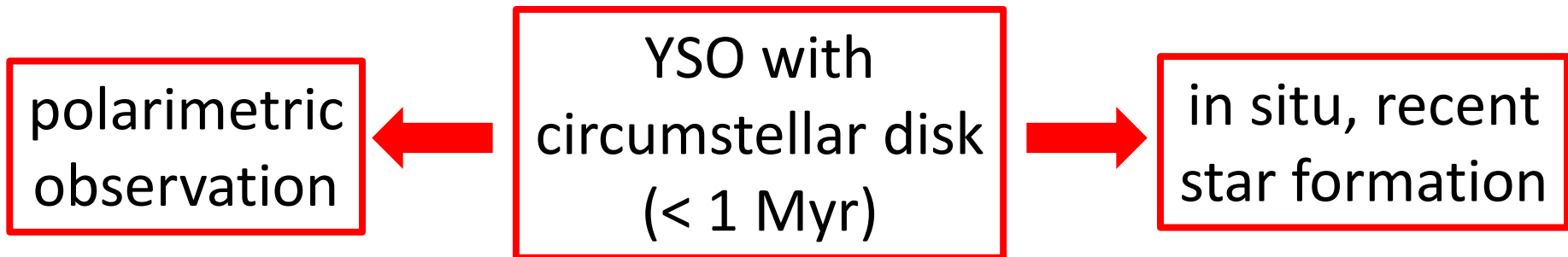
- Many young massive stars in the central parsec of GC  
(Paumard et al. 2006; Bartko et al. 2009)



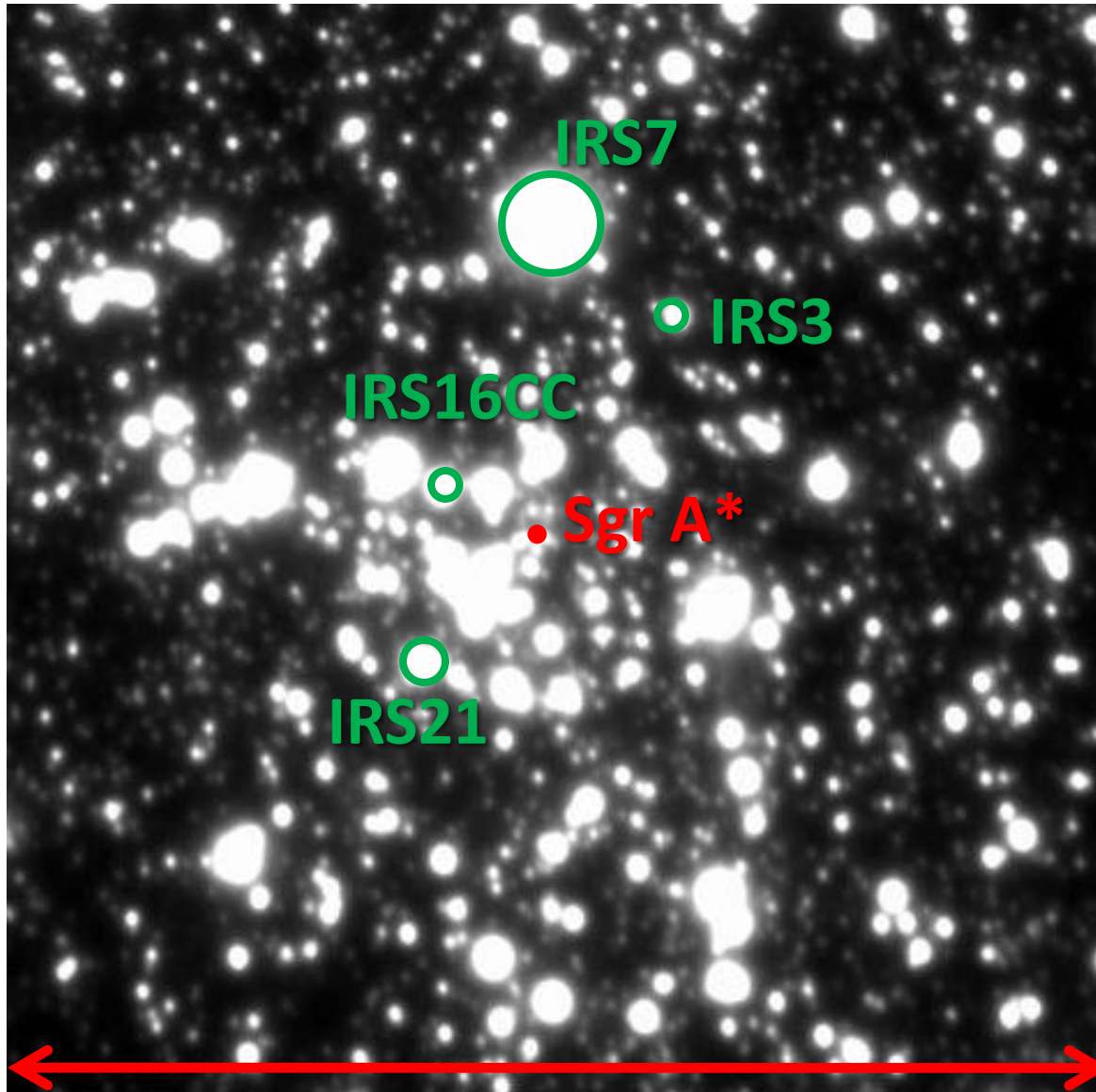
(Morris 1993)

- Two star formation scenarios
  1. in situ, accretion disk (Genzel et al. 2003)
  2. in-spiraling star cluster (Gerhard et al. 2001)

- search for YSOs



# Observation



20" (~0.8pc)

Instrument:

Subaru/CIAO ( $K_s$  band)

Date:

2008/05/26-28

Integral time:

20 sec  $\times$  189 set

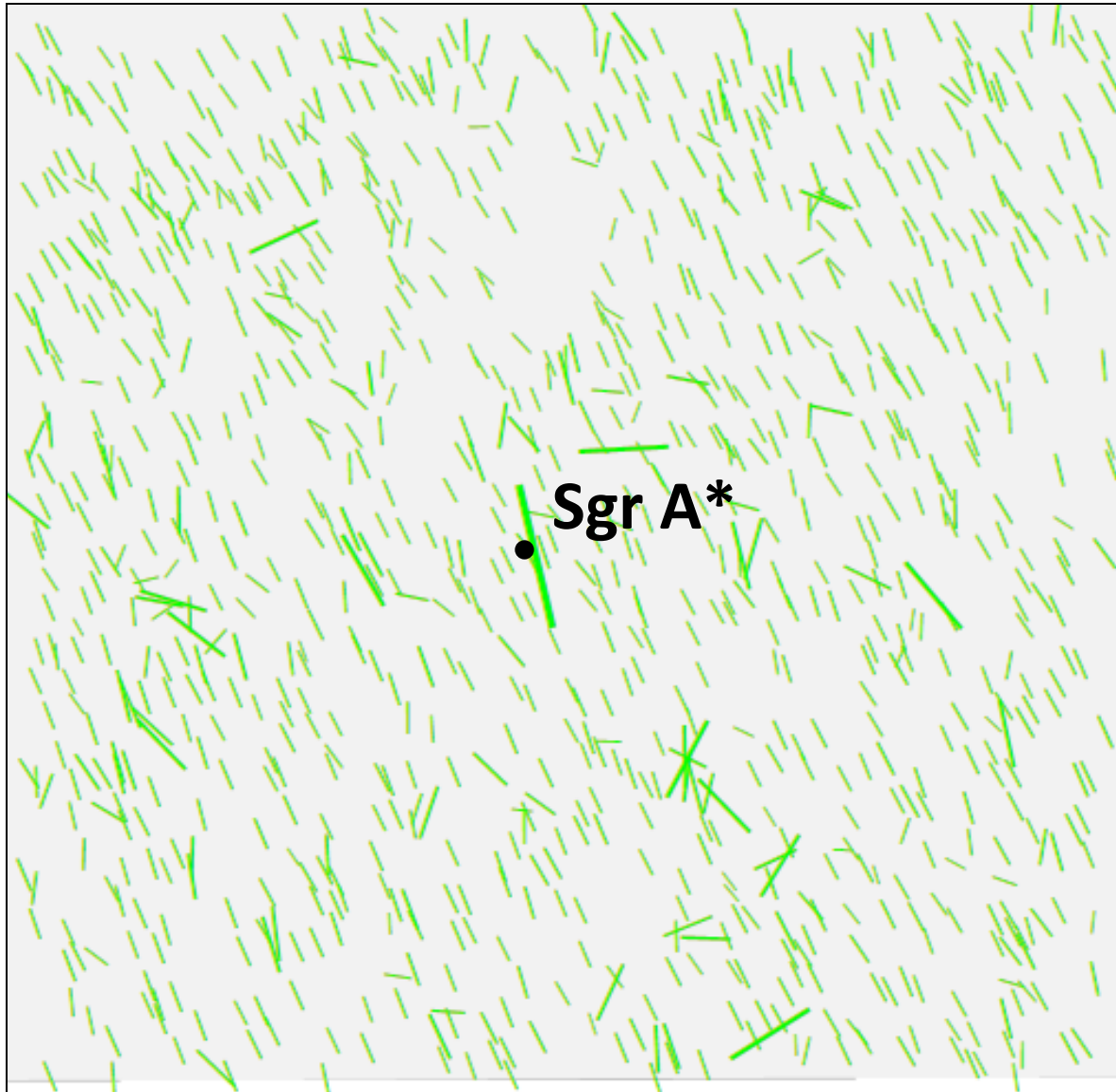
= 63min

Analysis:

$m_{K_s} < 16.5$  mag

psf photometry +  
aperture correction

# Results (preliminary)



Degree of polarization  
and polarization angle  
(977 stars )

flux-weighted average:

$$p=4.9\% \pm 0.9\%$$

$$\theta=27^\circ \pm 3^\circ$$

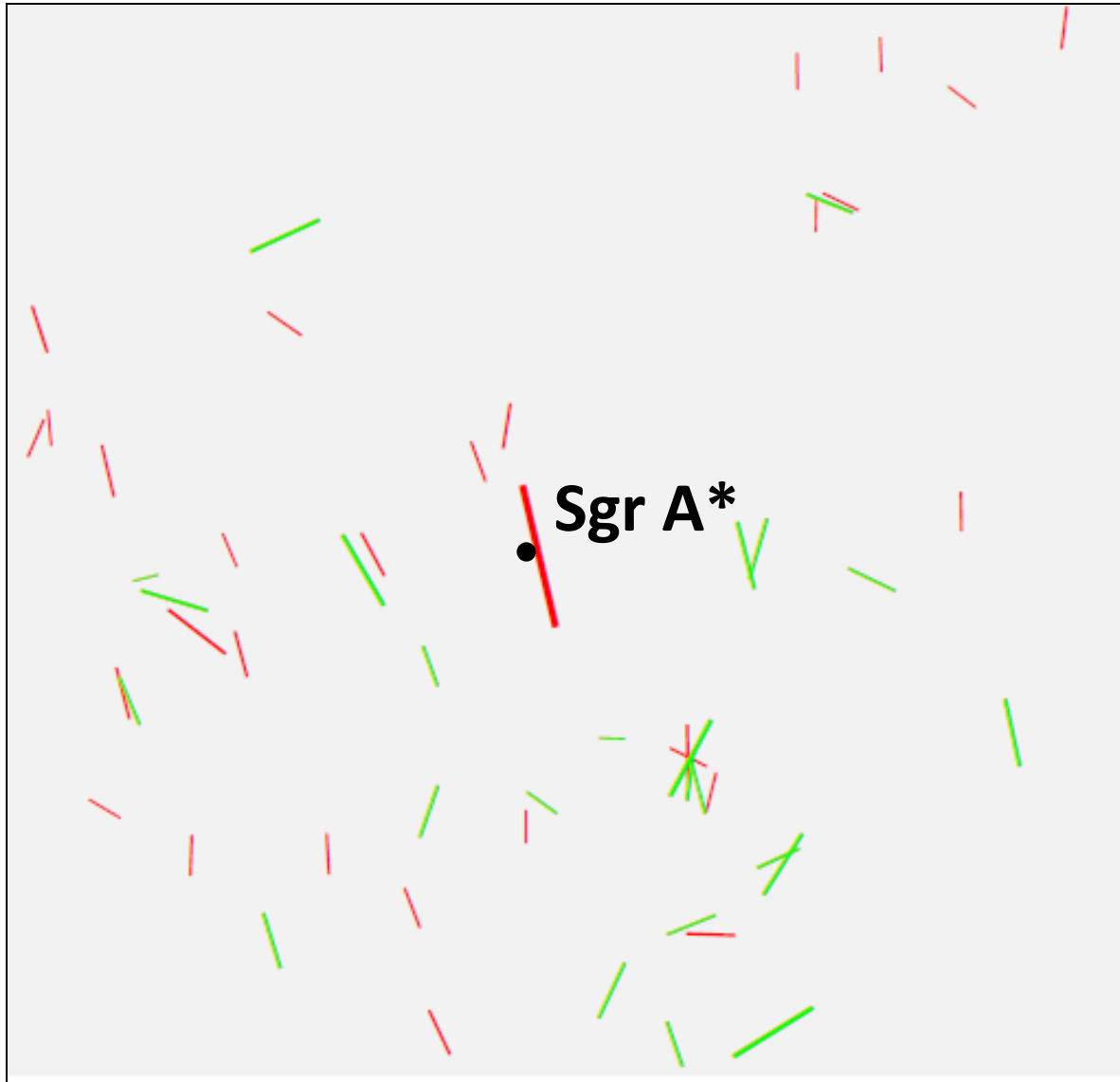
cf. )  $p=4.1\% \pm 0.6\%$

$$\theta=30^\circ \pm 10^\circ$$

(Ott et al. 1999)

10%

# Results (preliminary)



Intrinsically polarized stars :

$2\sigma$  ■■■ 30 stars (red)

$3\sigma$  ■■■ 24 stars (green)



YSO with circum-stellar disk?