

WiFeS integral field spectroscopy of early-stage QSO candidates

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The Wide Field Spectrograph *WiFeS* at the ANU 2.3 m telescope at Siding Spring Observatory is used for optical integral field spectroscopy of early-stage QSO candidates from a sample of $z < 0.06$ borderline type-1 QSOs. A first assessment of line diagnostics for HE 2211-3903 is presented as a part of an ongoing multi-wavelength study.

Wide Field Spectrograph *WiFeS* (Dopita et al. 2007, 2010):

- Integral field spectroscopy in 25" x 38" field of view
- Simultaneous observations in blue and red arm
- Spectral resolutions of $R_S=3000$ and $R_S=7000$

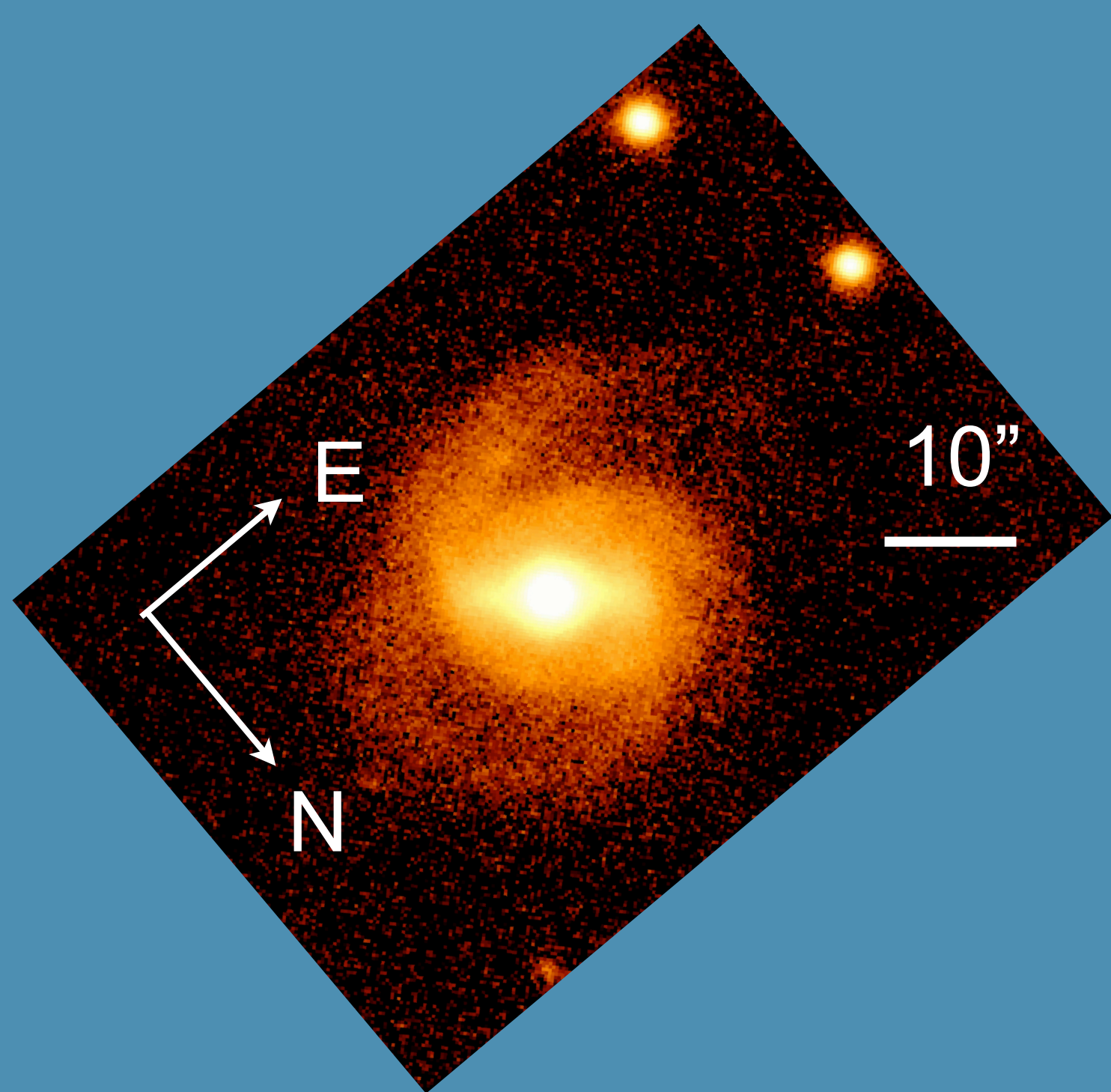
Borderline type-1 QSO sample (see König et al. 2009, Betram et al. 2007, Fischer et al. 2006):

- 99 $z < 0.06$ type-1 AGN from the Hamburg/ESO quasar catalogue (Wisotzki et al. 2000)
- Luminosities around classical Seyfert/QSO demarcation

HE 2211-3903 (ESO 344-G016) @ $z = 0.0397$

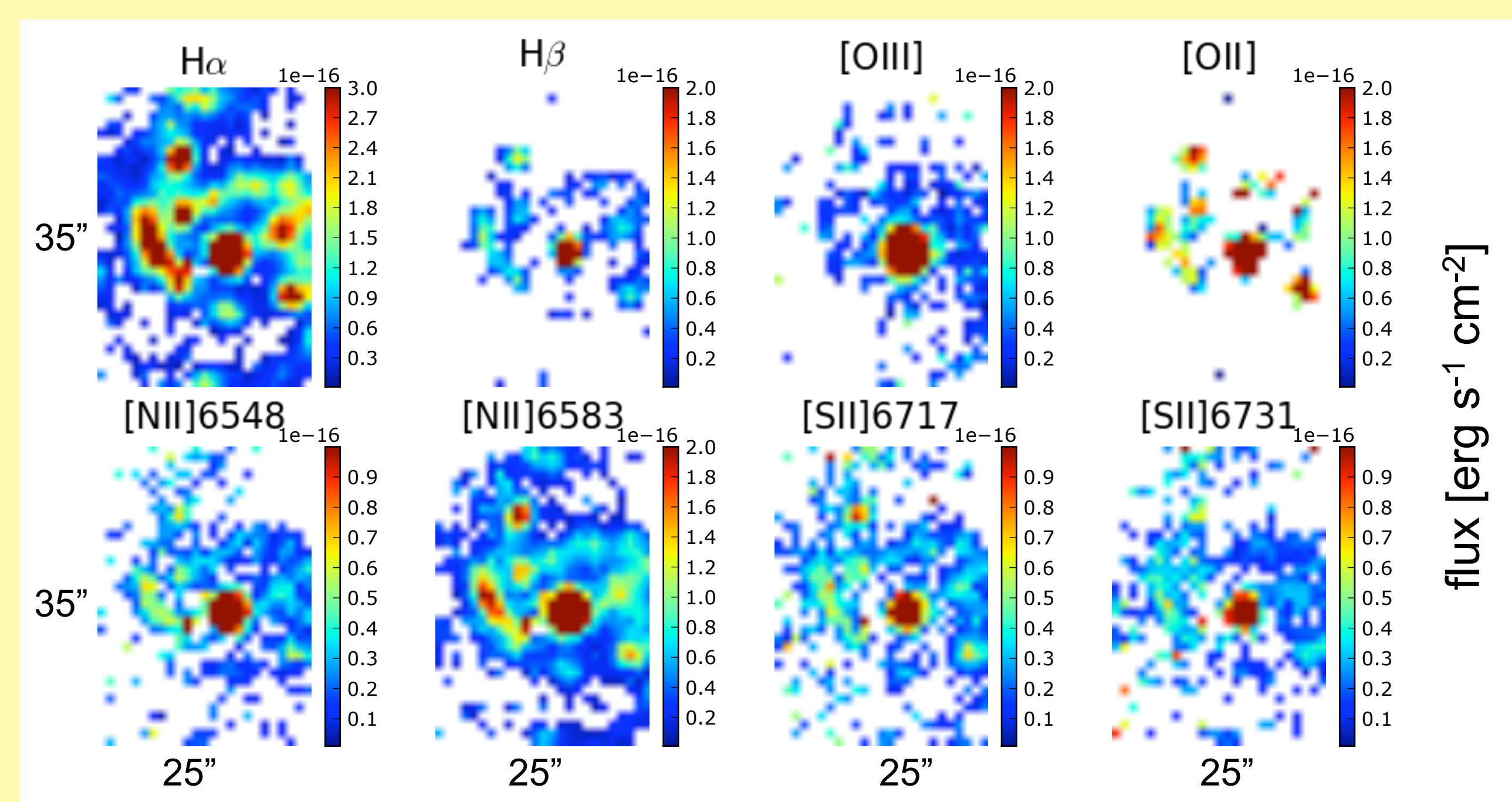
- 1" ~ 0.8 kpc
- Early-stage QSO candidate based on IRAS colour selection

H-band image of HE 2211-3903 (Sofl, NTT, ESO): Stellar bar

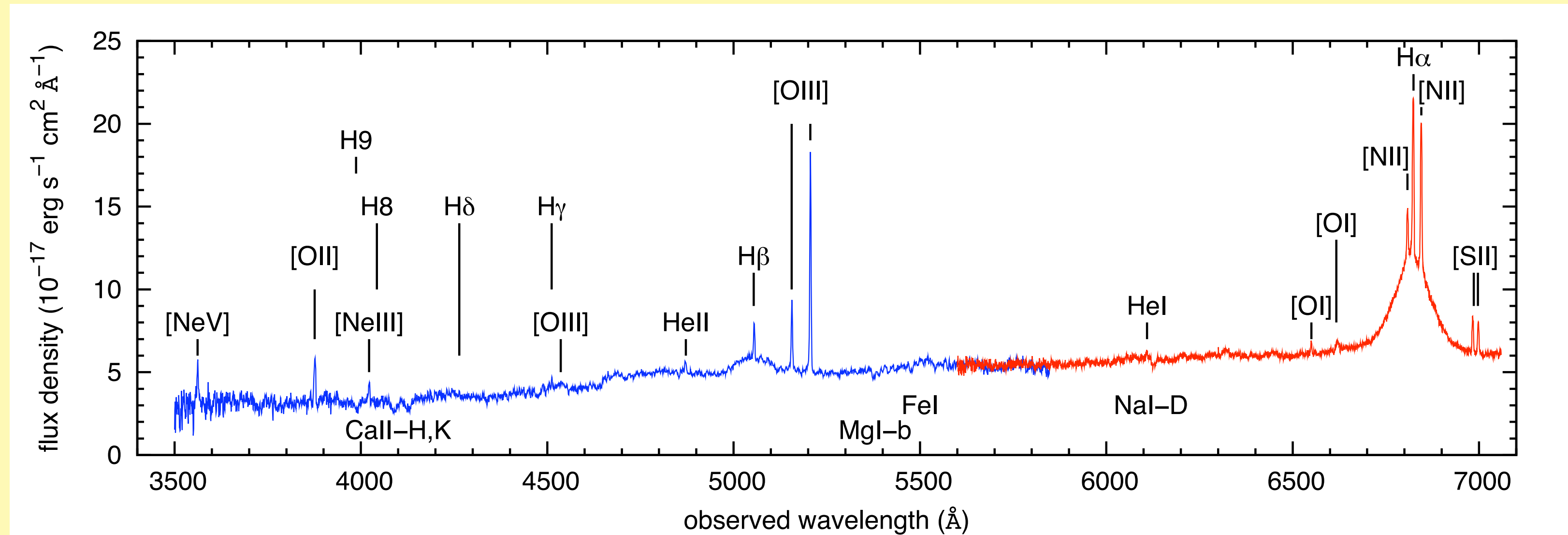


References:

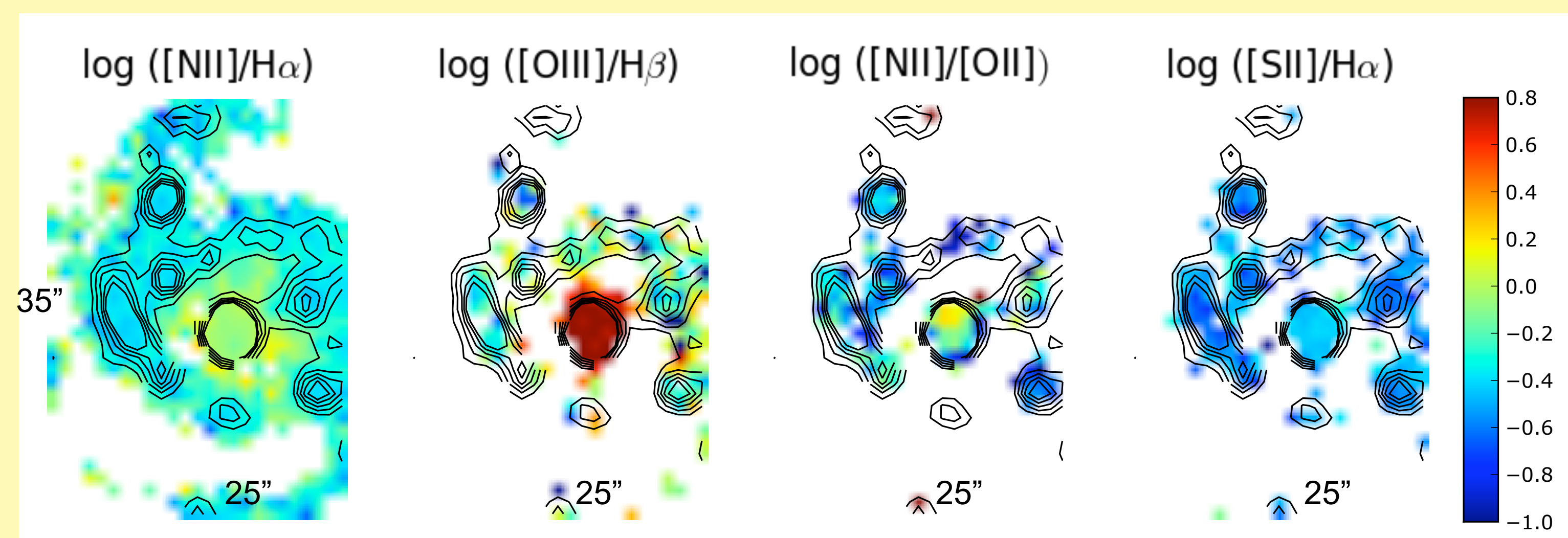
- Bertram et al. 2007, A&A, 470, 571
- Dopita et al. 2006, ApJS, 167, 177
- Dopita et al. 2007, Ap&SS, 310, 255
- Dopita et al. 2010, arXiv:1002.4472
- Fischer et al. 2006, A&A, 452, 827
- König et al. 2009, A&A, 507, 757
- Wisotzki et al. 2000, A&A, 358, 77



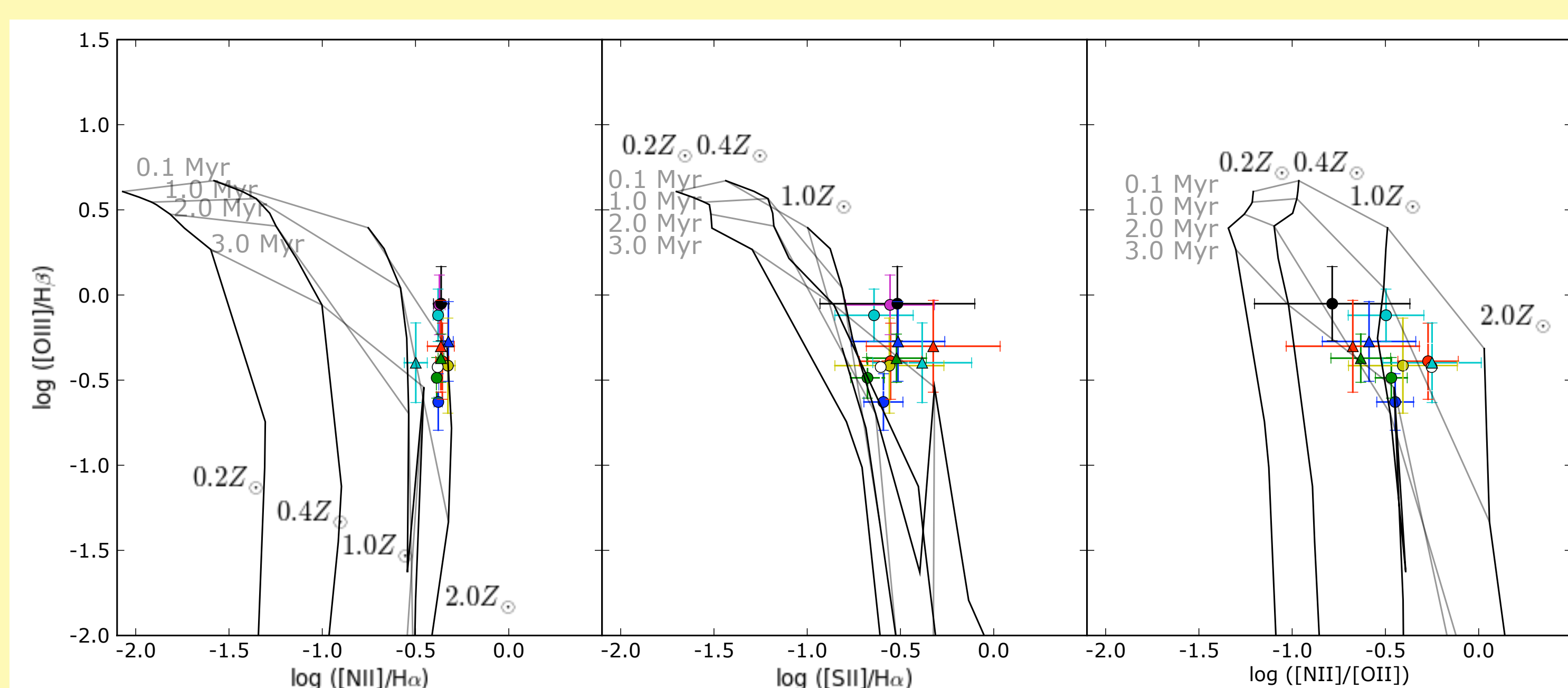
Emission line maps of HE 2211-3903: The maps reveal a star forming ring with a radius of ~7 kpc. The ring is connected to the nuclear region through a bar-like structure which is likely to be physically associated with the stellar bar.



Nuclear spectrum of HE 2211-3903: Broad hydrogen lines agree with the type 1 nature of the AGN. The spectrum shows an underlying stellar contribution.



Diagnostic maps: AGN-photoionised gas separates from HII regions. There are signs of AGN photoionisation of the low-density ISM in the eastern part of the ring.



BPT diagrams for off-nuclear HII regions: Comparison with photoionisation models from Dopita et al. (2006) indicates a scatter around solar metallicities.