

Конференция «The Role of Gas
in Galaxy Dynamics»
(продолжение)

October 2-6, 2017 – Valletta,
Malta

Chemin:

- Анизотропия эллипсоида скоростей HI!
- Два семейства галактик; у одного – увеличенная дисперсия РАДИАЛЬНЫХ скоростей нейтрального водорода.

Законы звездообразования – уточнение Кенниката-Шмидта

- Silk97, Elmegreen97: $SFR \sim \Sigma(\text{gas}) \Omega$

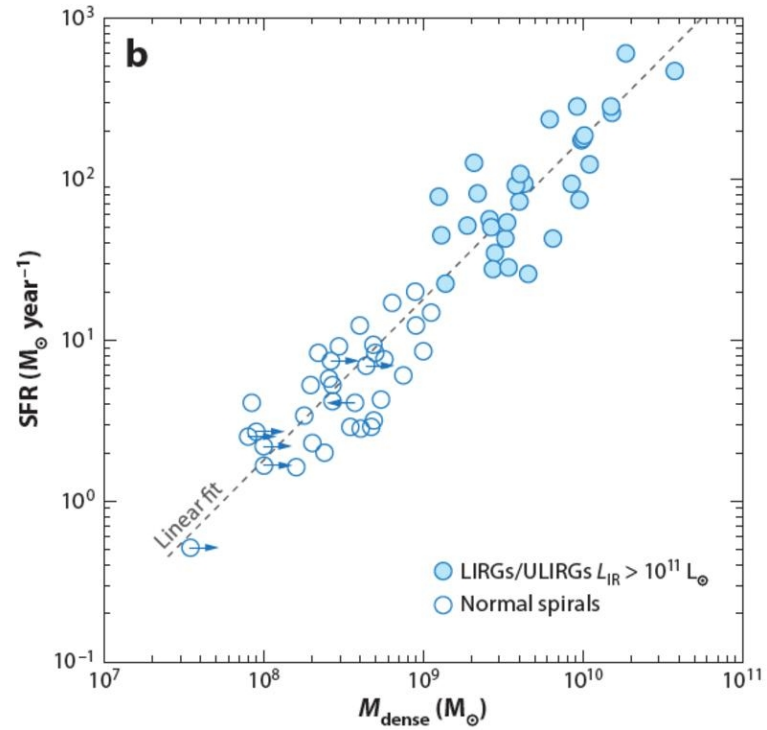
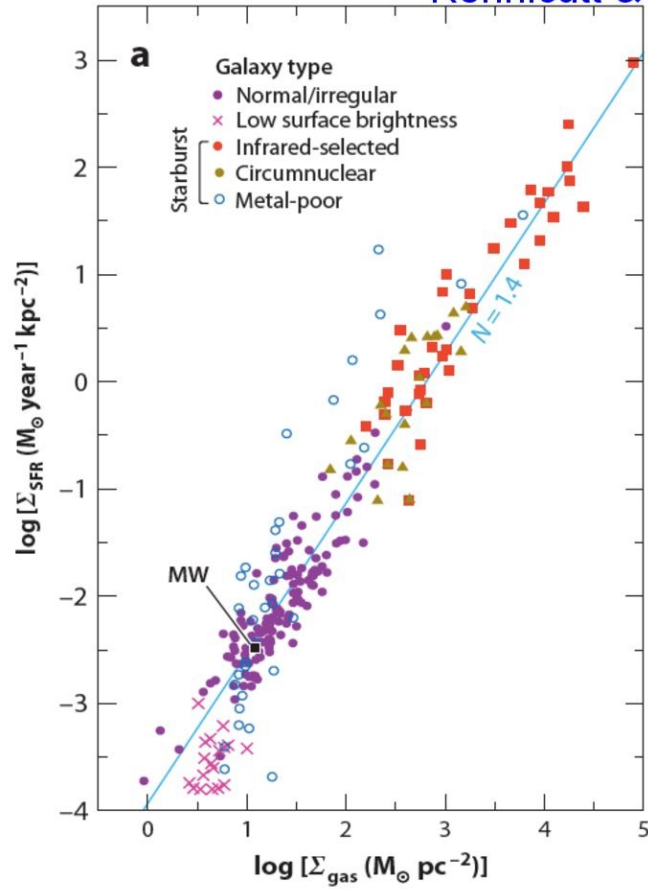
Escala: теория размерности дает

$$SFR \sim \text{Sqrt}(G/L) \Sigma(\text{gas})^{1.5}$$

(где L – длина пути интегрирования LOS)

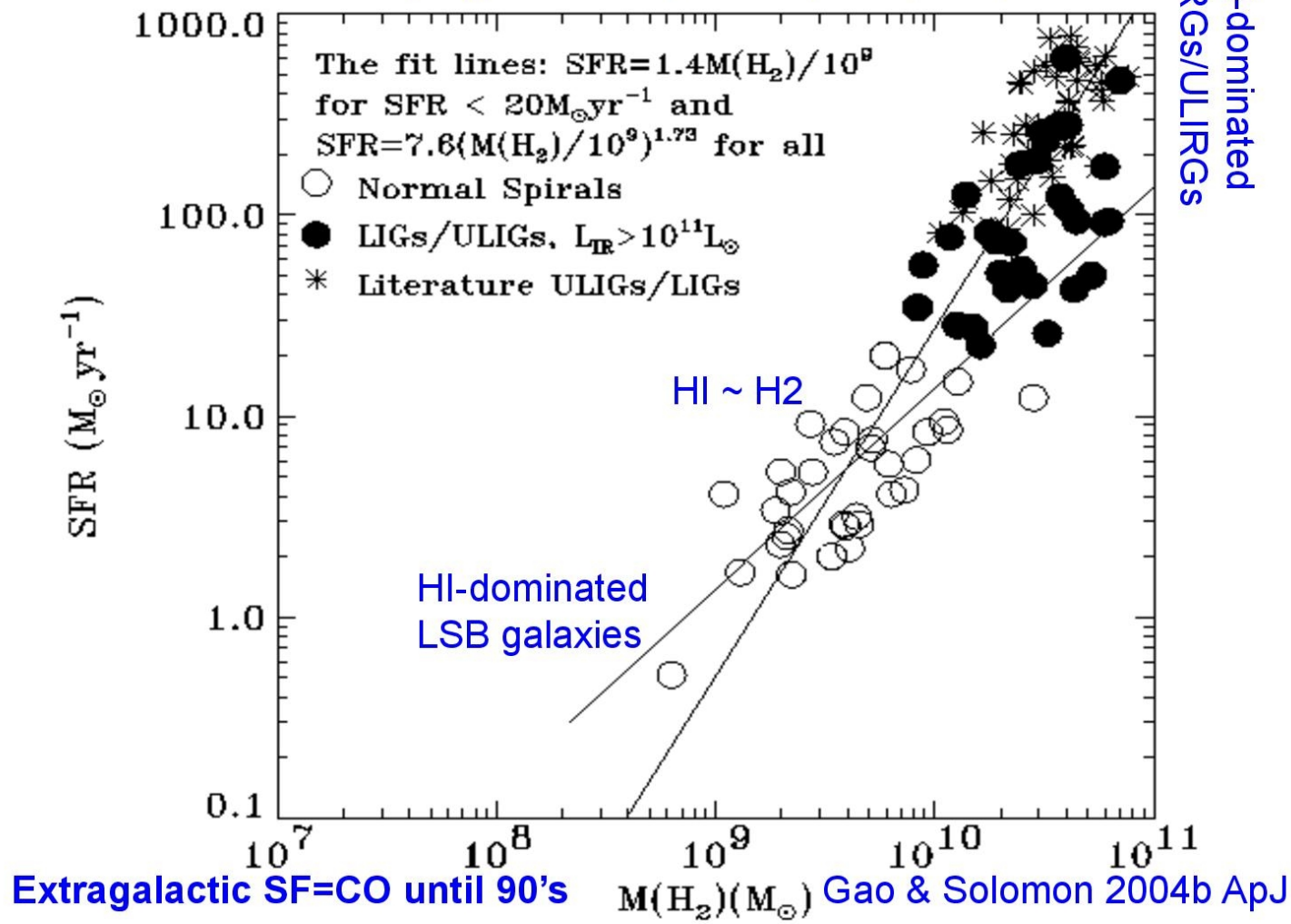
Gao:

Kennicutt & Evans 2012, ARAA

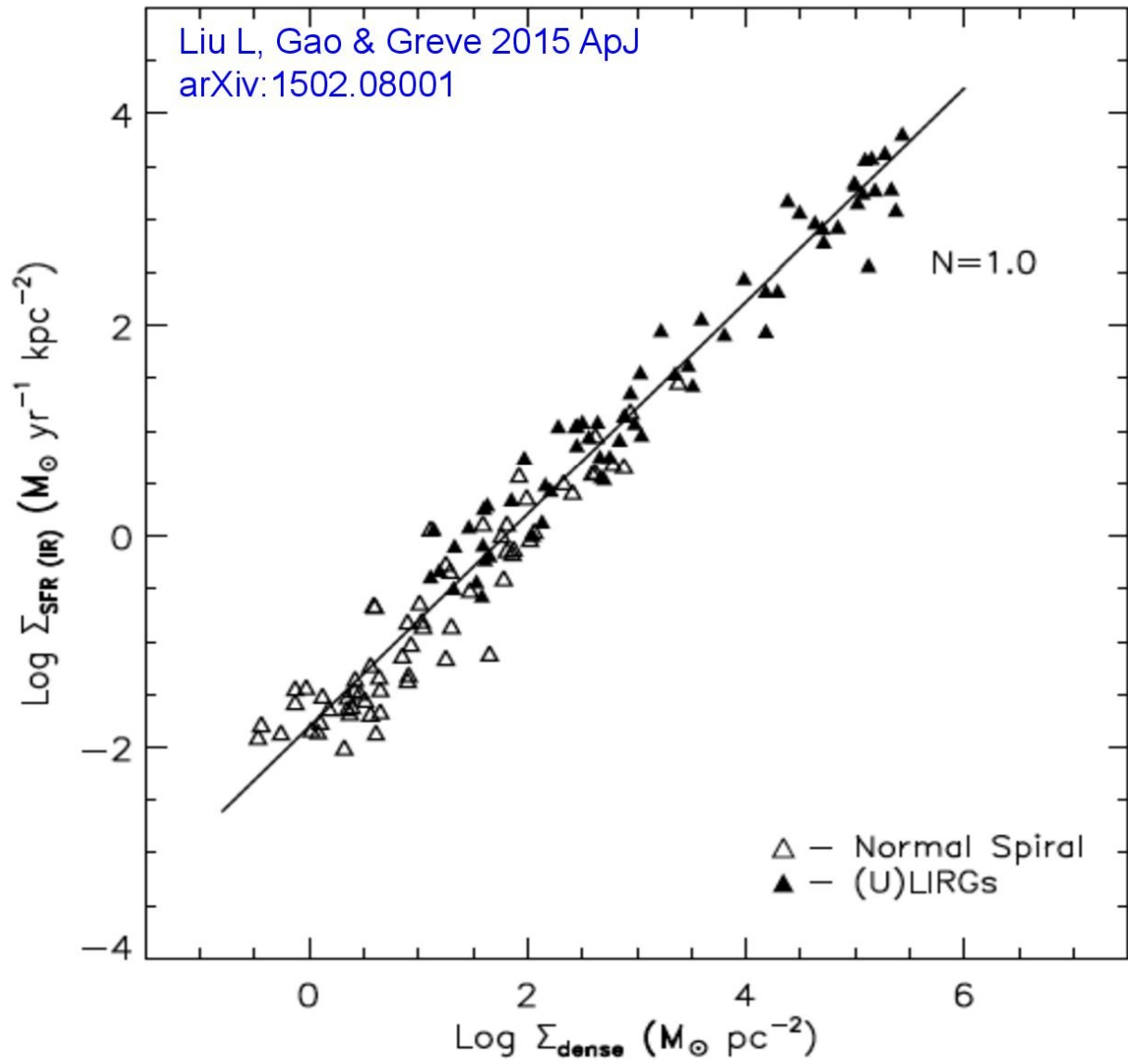


Disk-average [SFR ~ density(HI+H2)^{1.4}]

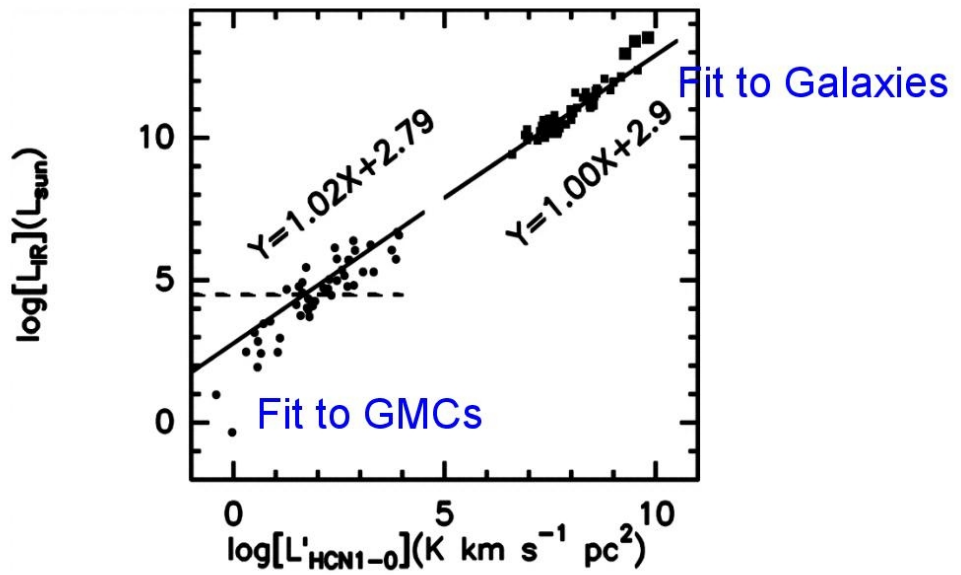
SFR vs. M(H2): No Unique Slope:1, 1.4, 1.7?



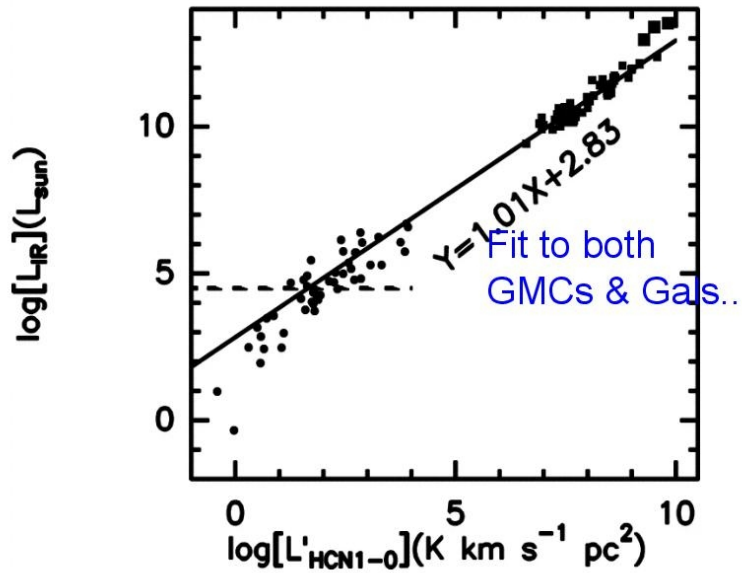
Liu L, Gao & Greve 2015 ApJ
arXiv:1502.08001

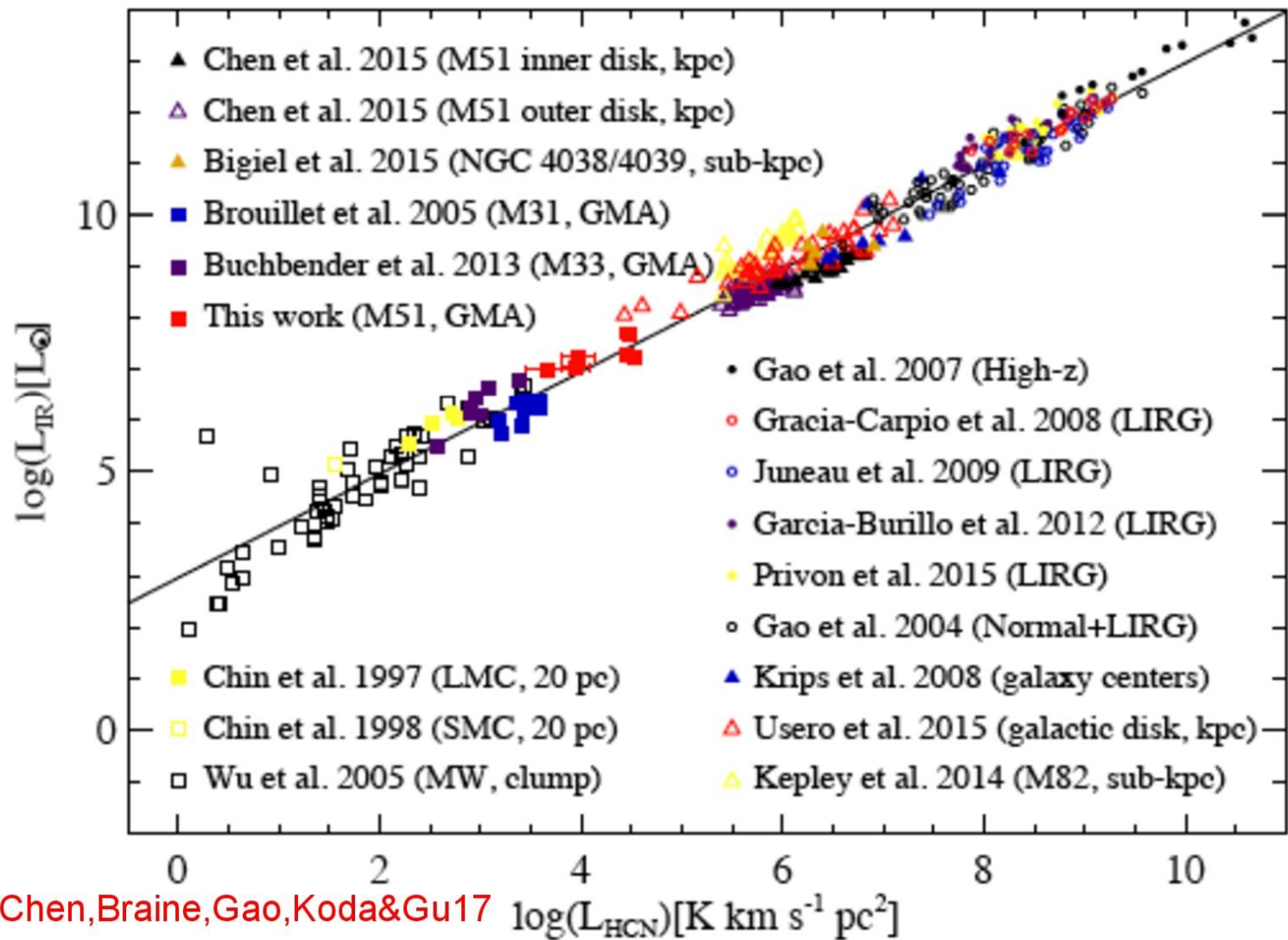


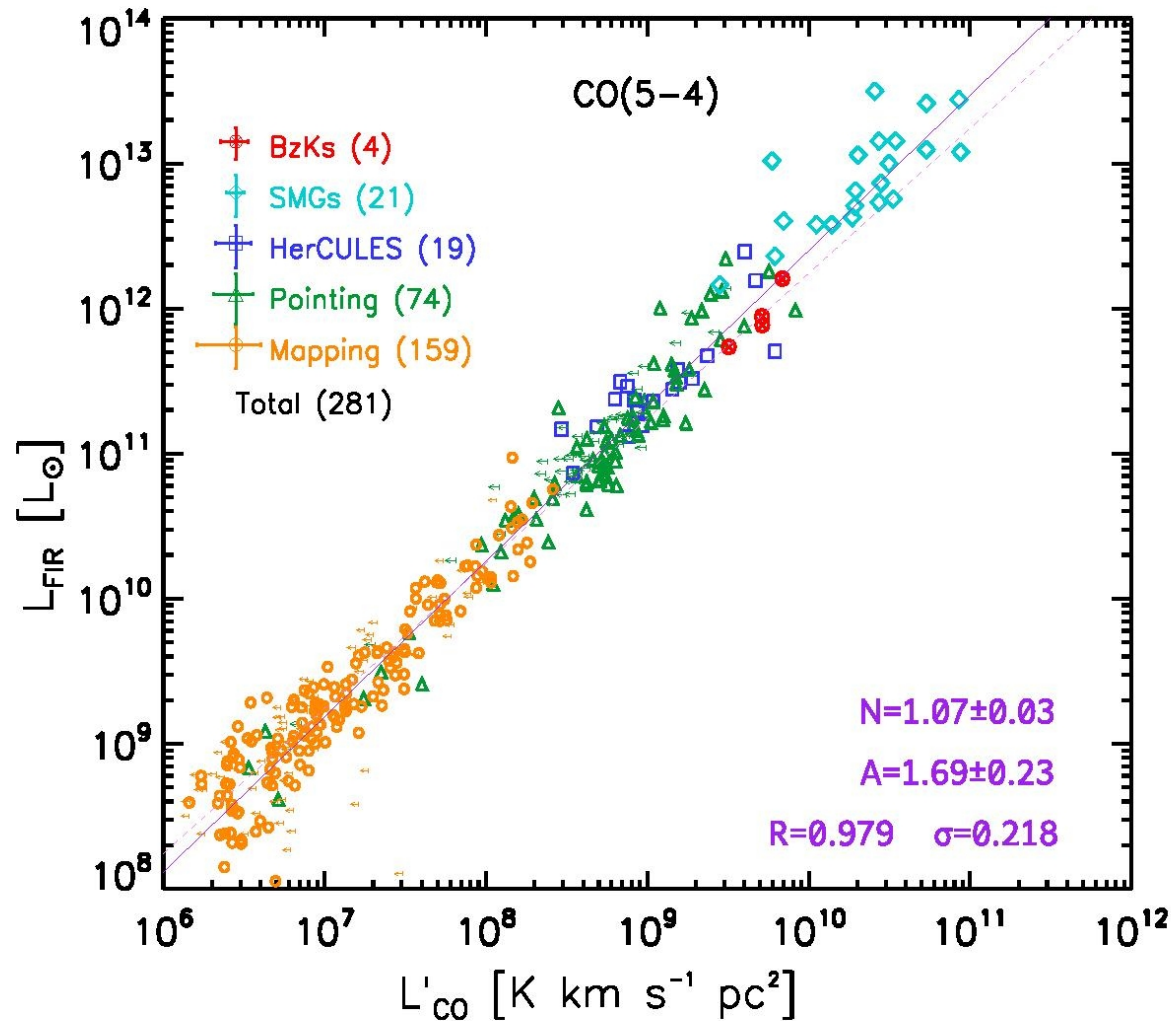
Wu, Evans, Gao
et al. 2005 ApJL



Wu+2010







CO(5-4) a most detected high-J CO line at high-z
 – deepest CO toward normal SFG at $z\sim 1.5$
 Daddi et al. 2015

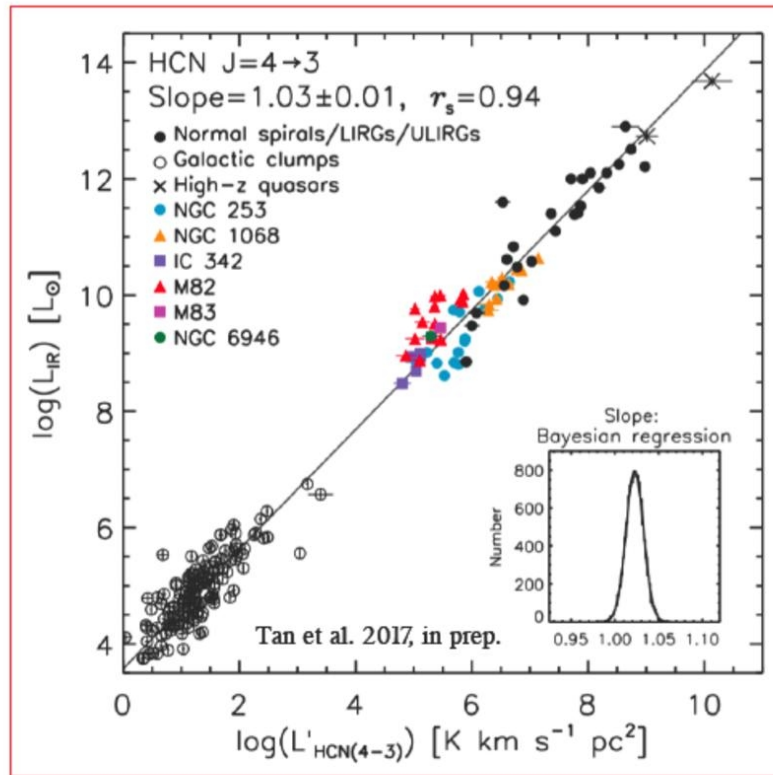
BzK

– normal SFG with moderate SFR – steady evolution

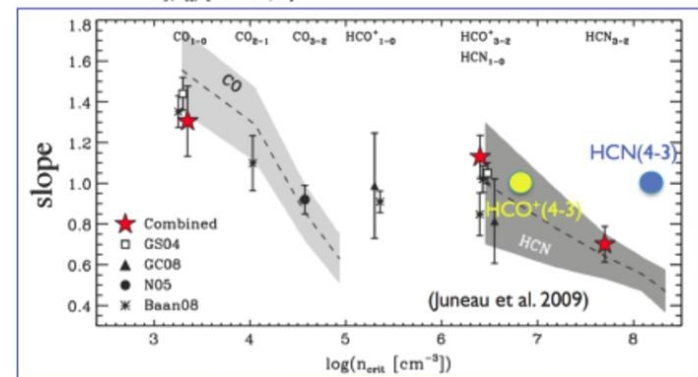
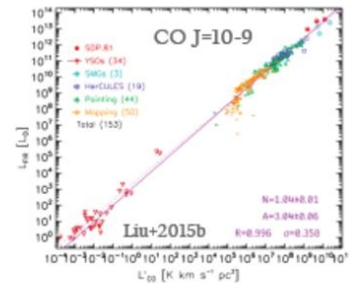
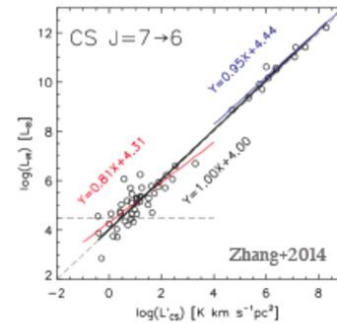
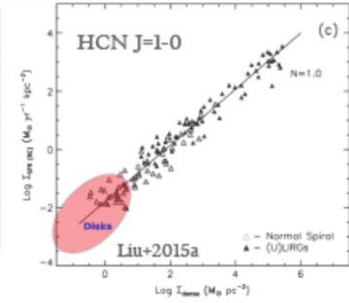
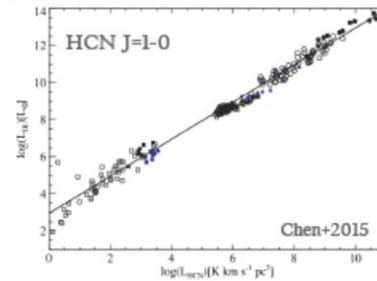
SMG

– starburst with very high SFR – merger evolution
 – note that IR are poorly determined so far

FIRST RESULTS

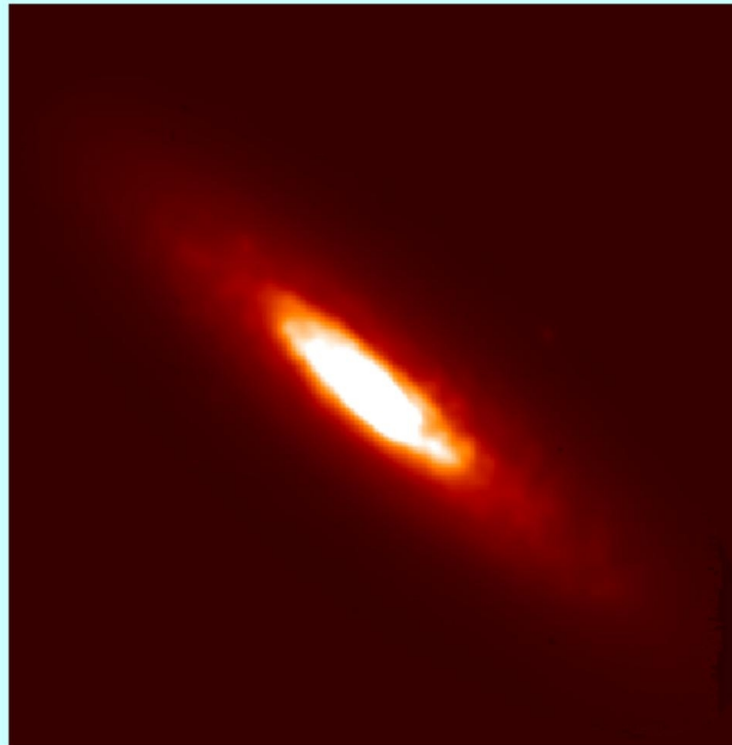


- bridge the gap between Galactic clumps and galaxies that spans over 10 orders of magnitude
- linear correlations hold for all densities $> 10^4 \text{ cm}^{-3}$!



Pizzella: IC 719, MUSE

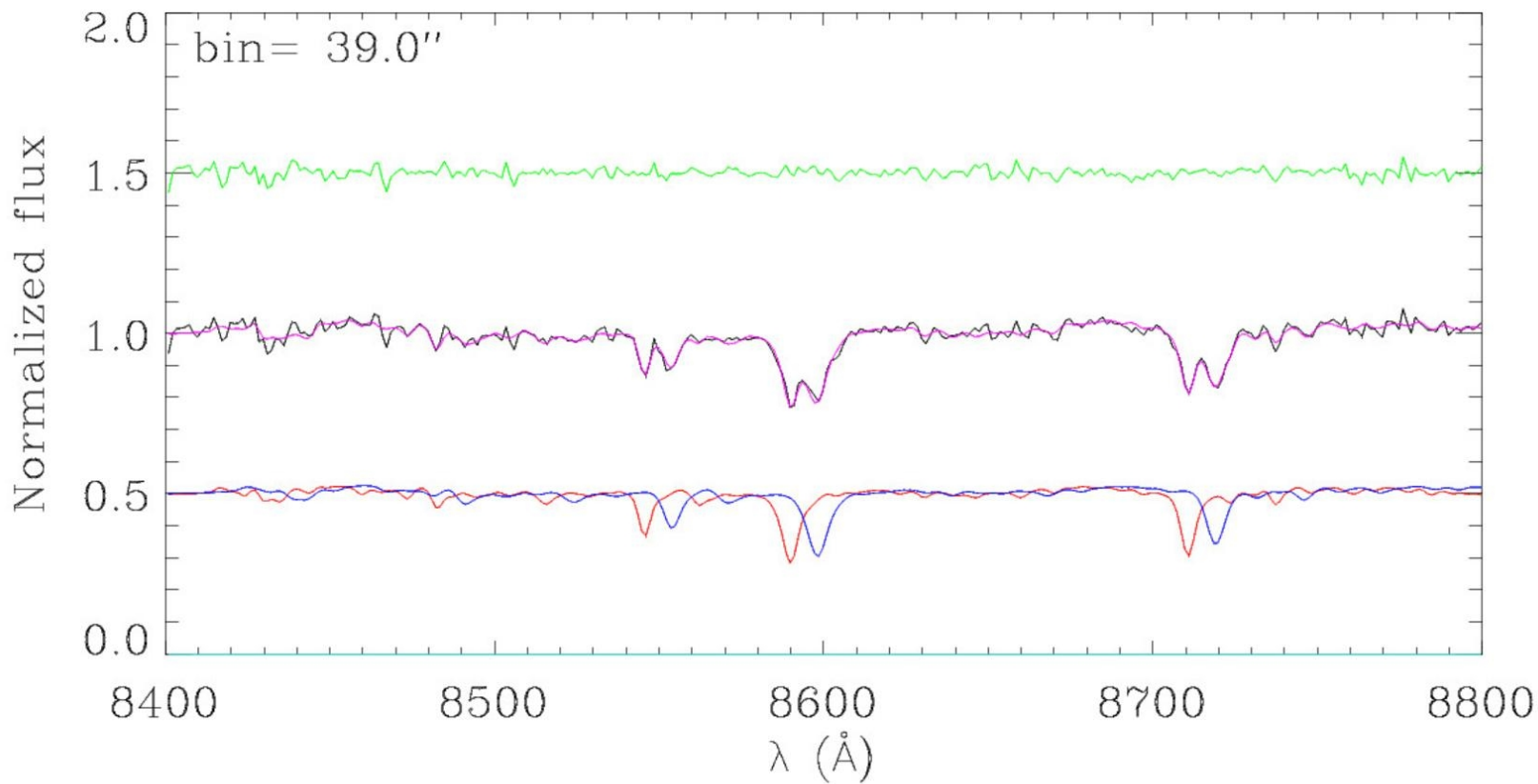
MUSE @VLT → IC 719 – S0 27kpc; B = 14.00



Reconstructed image spaxel $0.2'' \times 0.2''$, seeing $\sim 1.4''$

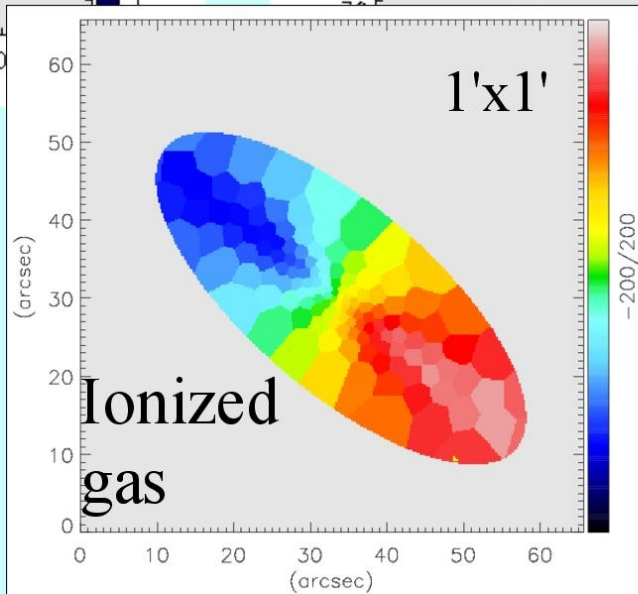
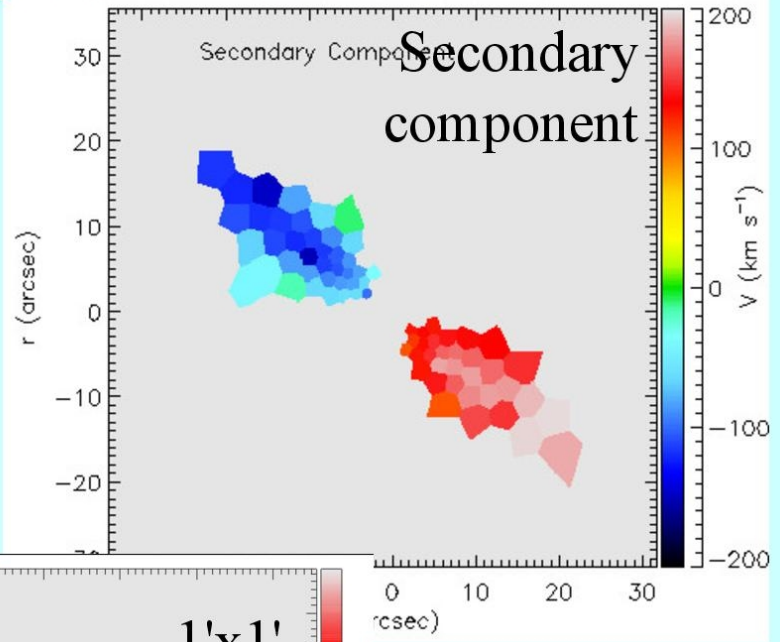
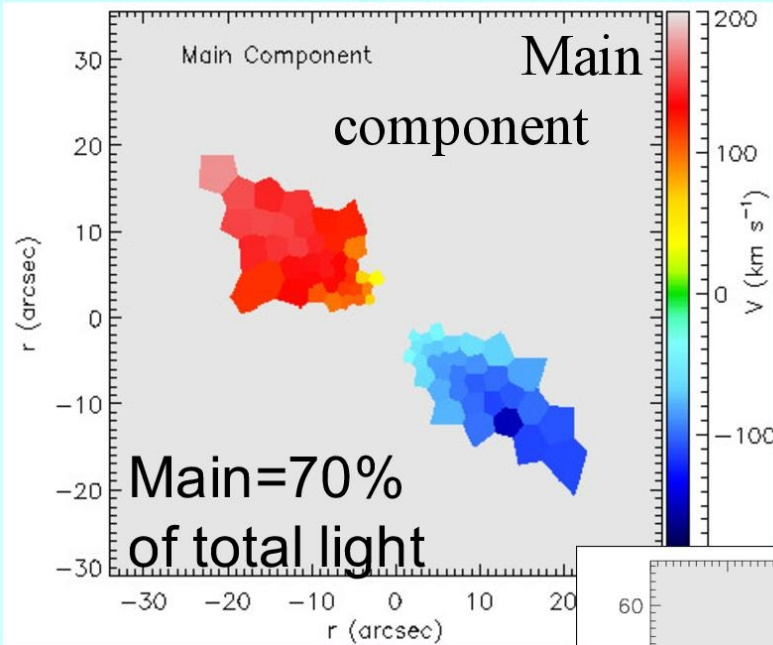
IC 719

Ca Triplet region

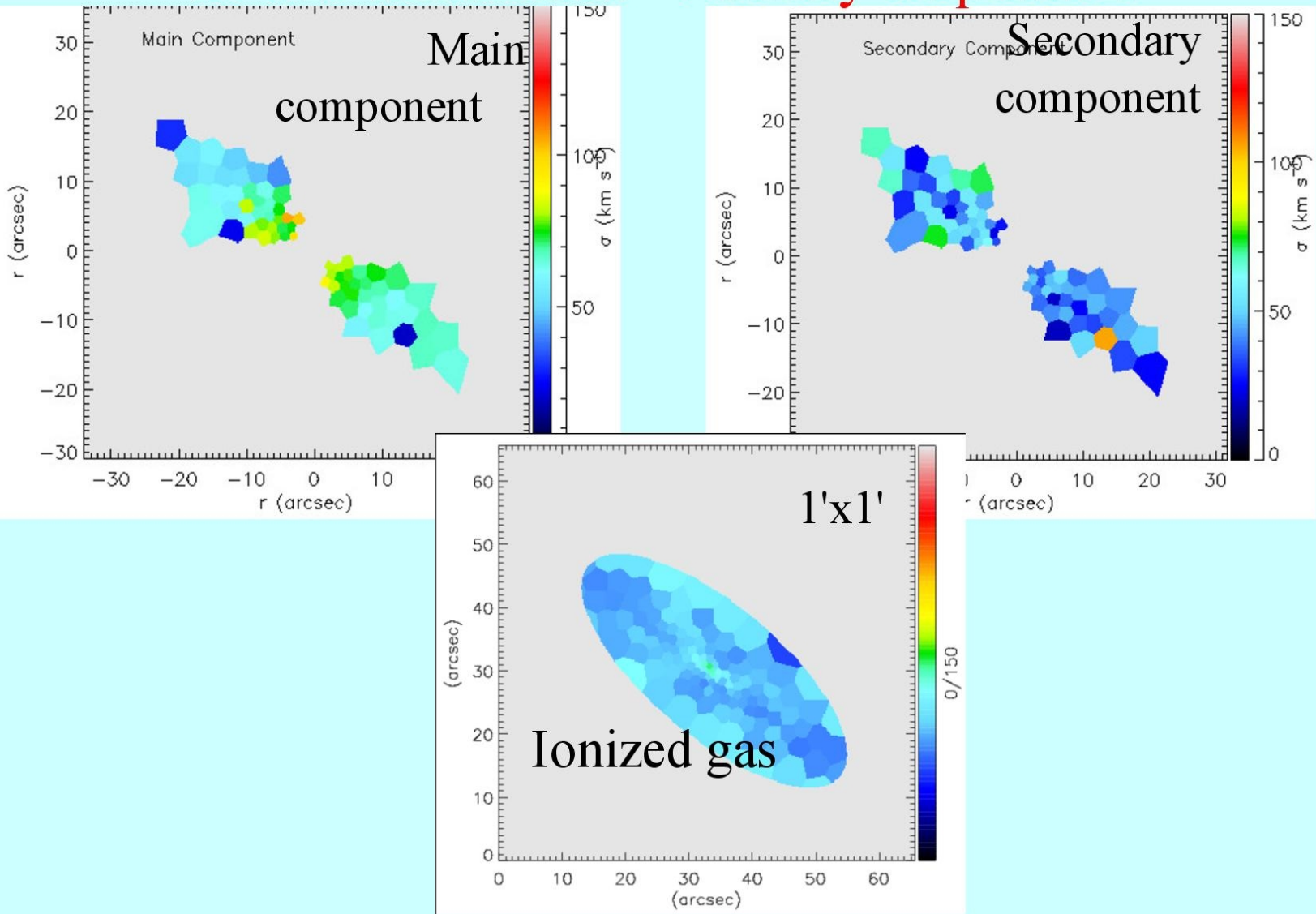


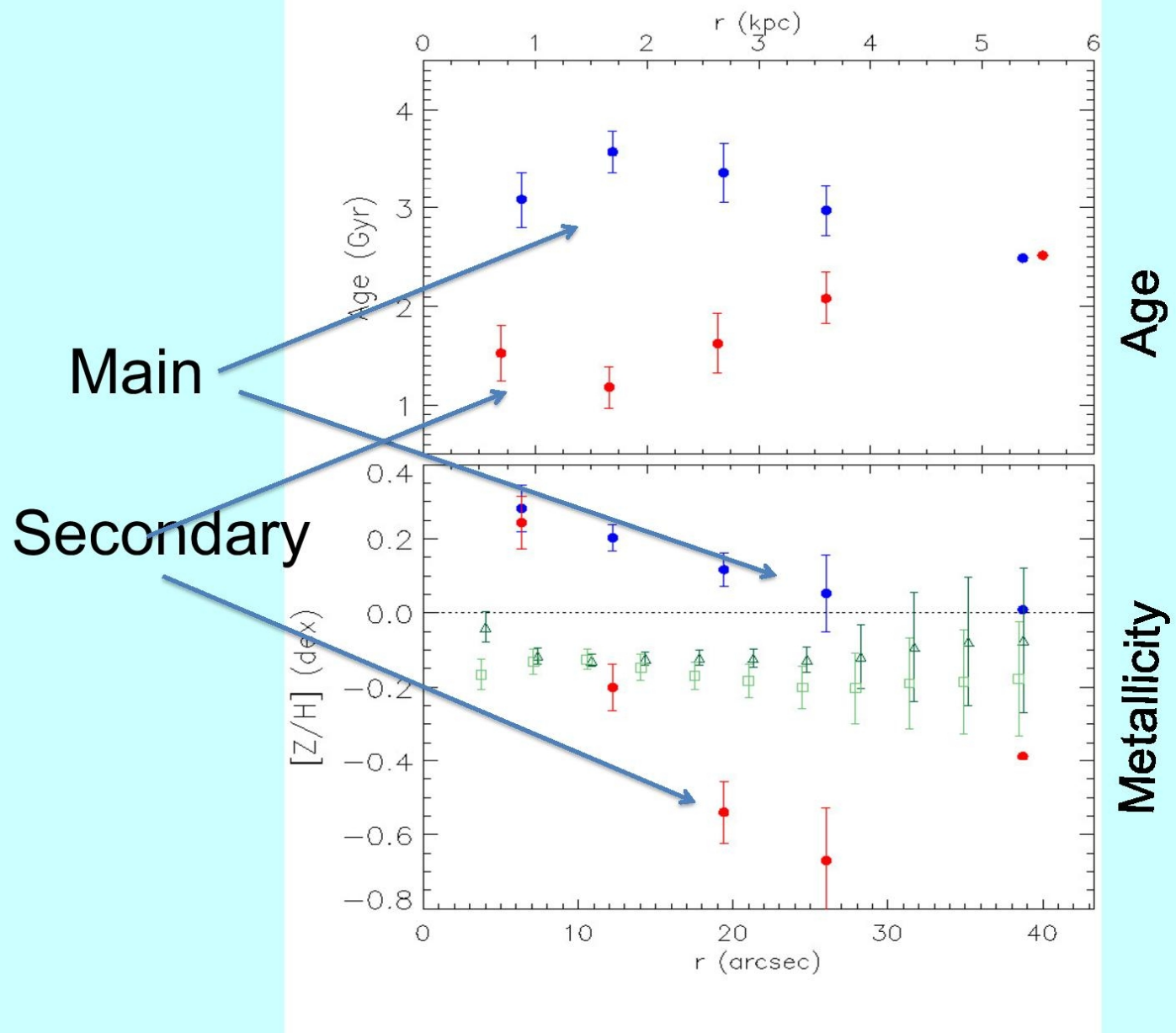
MUSE@VLT $\Delta\lambda=2.5\text{\AA}$ R=2000-3500 ; $\sigma = 65 - 35$ km/s

IC 719 kinematics - Velocity field

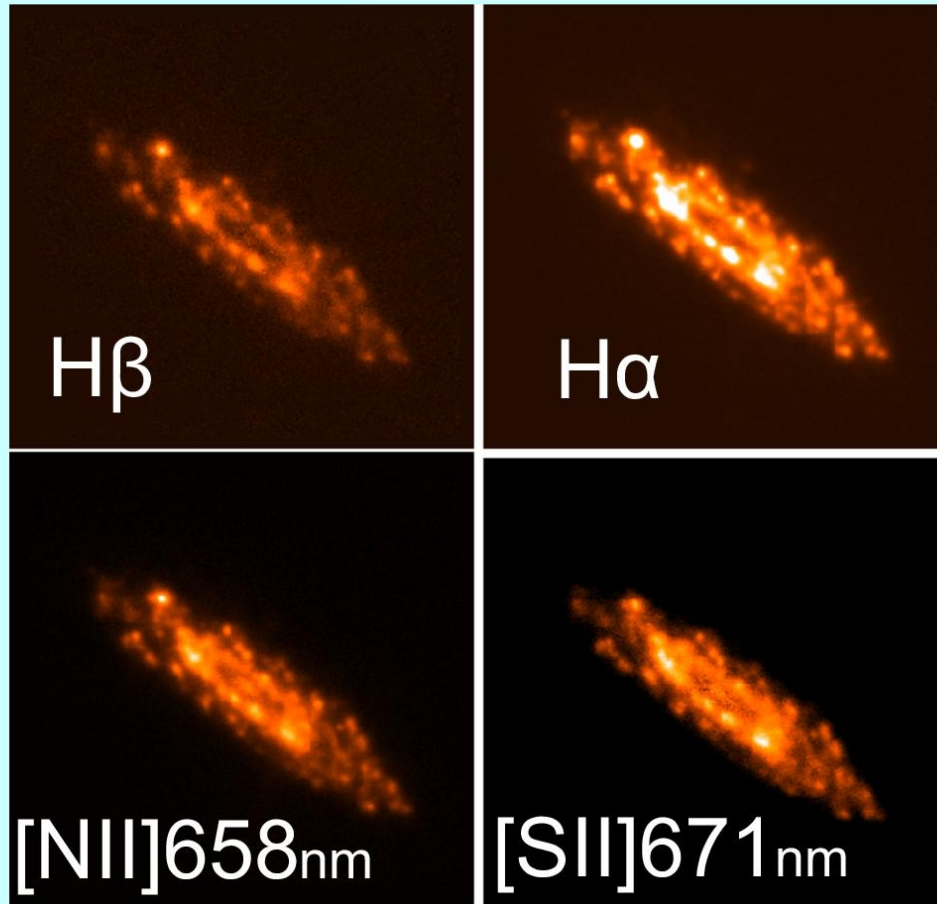


IC 719 kinematics - Velocity dispersion





MUSE - IC 719 Narrow band imaging



Observational Results

- Secondary component: same **kinematics** and same **spatial distribution** as the ionized gas.
- Secondary component: **younger** and **metal poor** in comparison with the main component (see also Katkov, Sil'chenko et al 2013)
- There is **Star formation** associated to the secondary component
- Secondary component: **thinner** ($q < 0.15$) than the main component ($q = 0.2 - 0.3$)