



Estallidos de Formación
Estelar en Galaxias

Metal-poor Wolf-Rayet HII galaxies revealed by Integral Field Spectroscopy

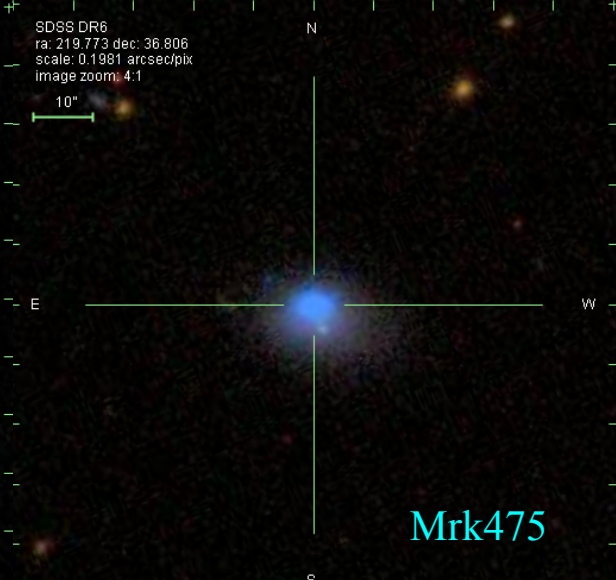
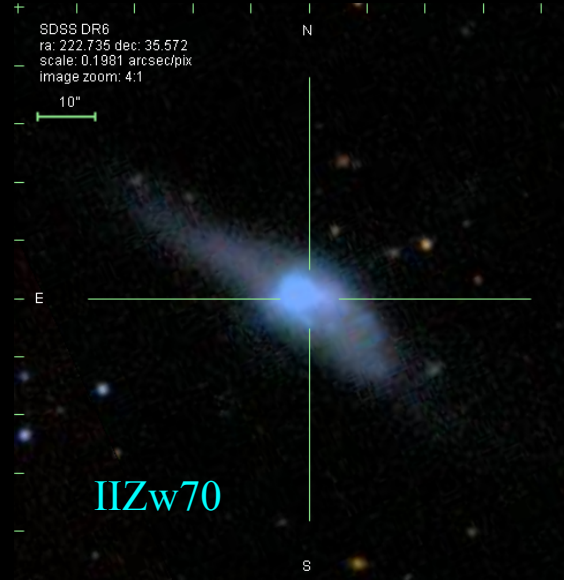
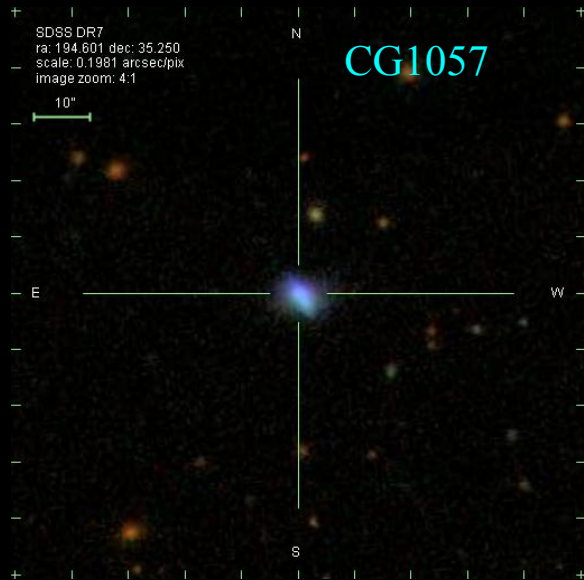
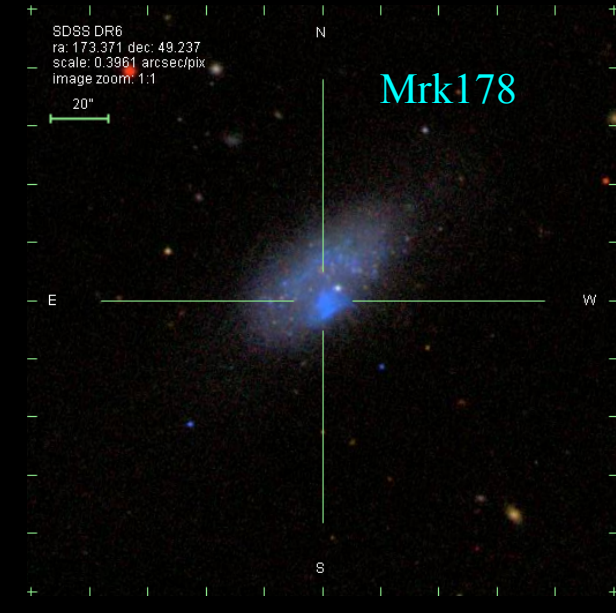
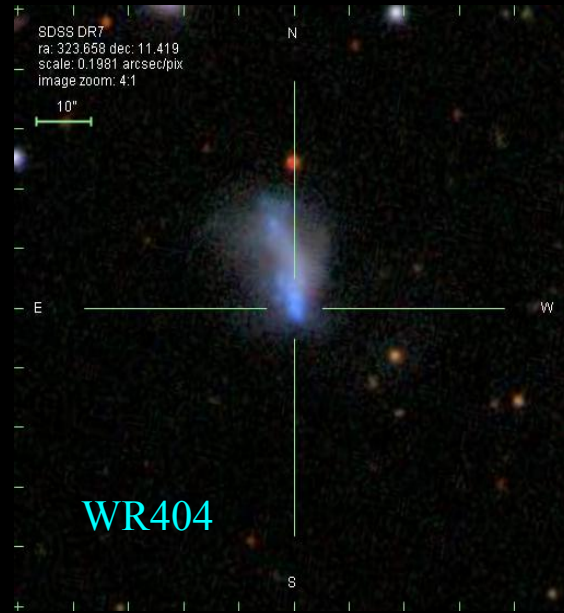
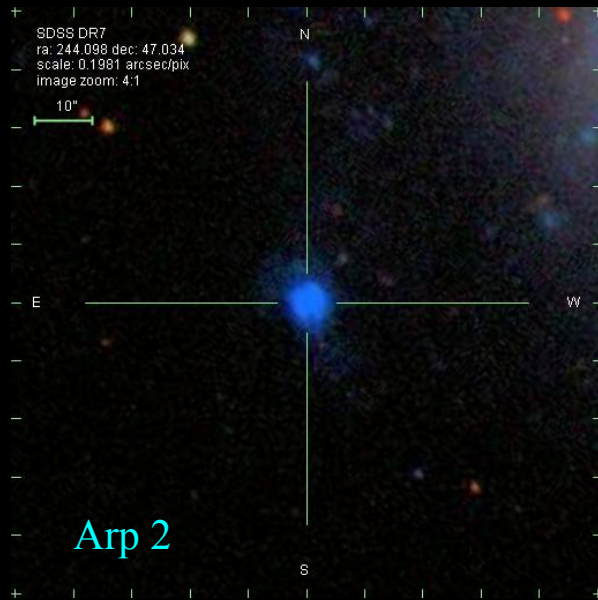
Carolina Kehrig et al.

Instituto de Astrofísica de Andalucía (IAA-CSIC)

Galaxies in 3D Across the Universe

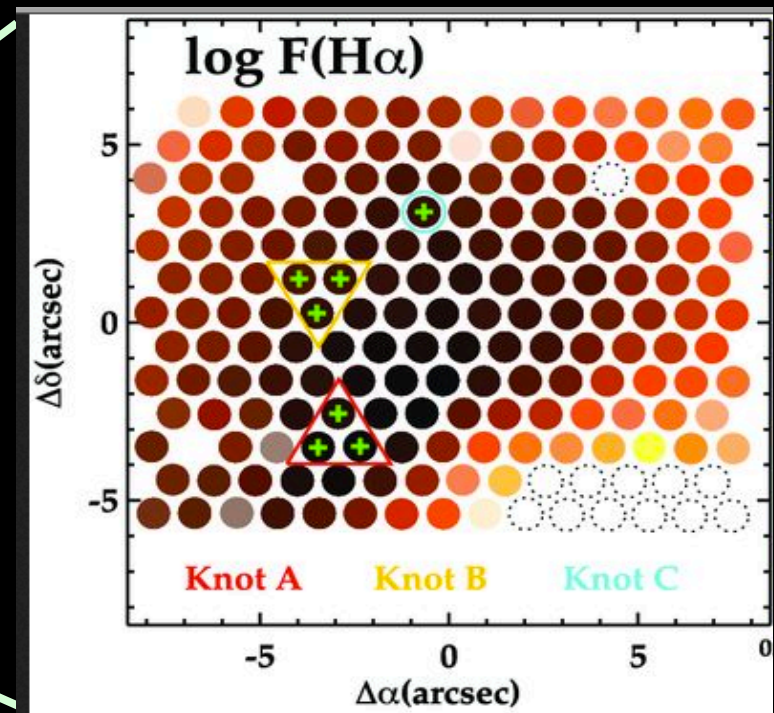
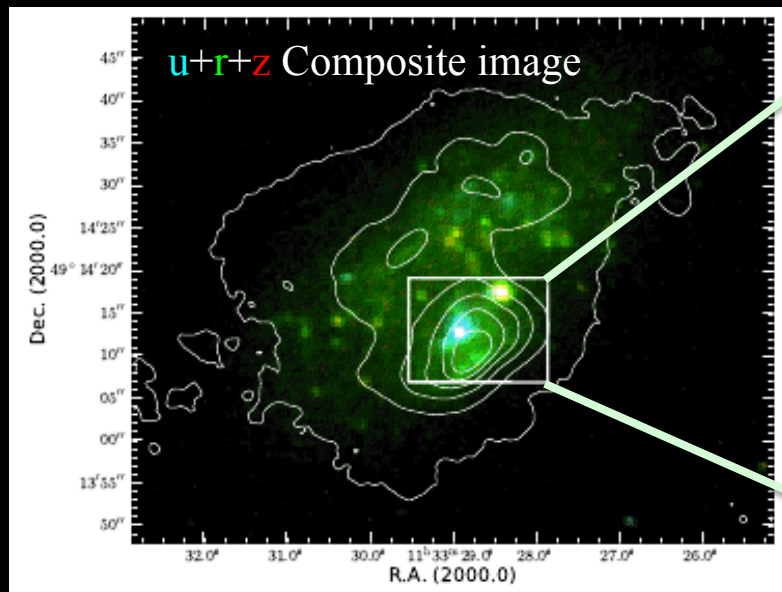
July 7-11, 2014 - Vienna, Austria

IFU data of 15 metal-poor WR galaxies (PMAS at 3.5m CAHA and 4.2m WHT)



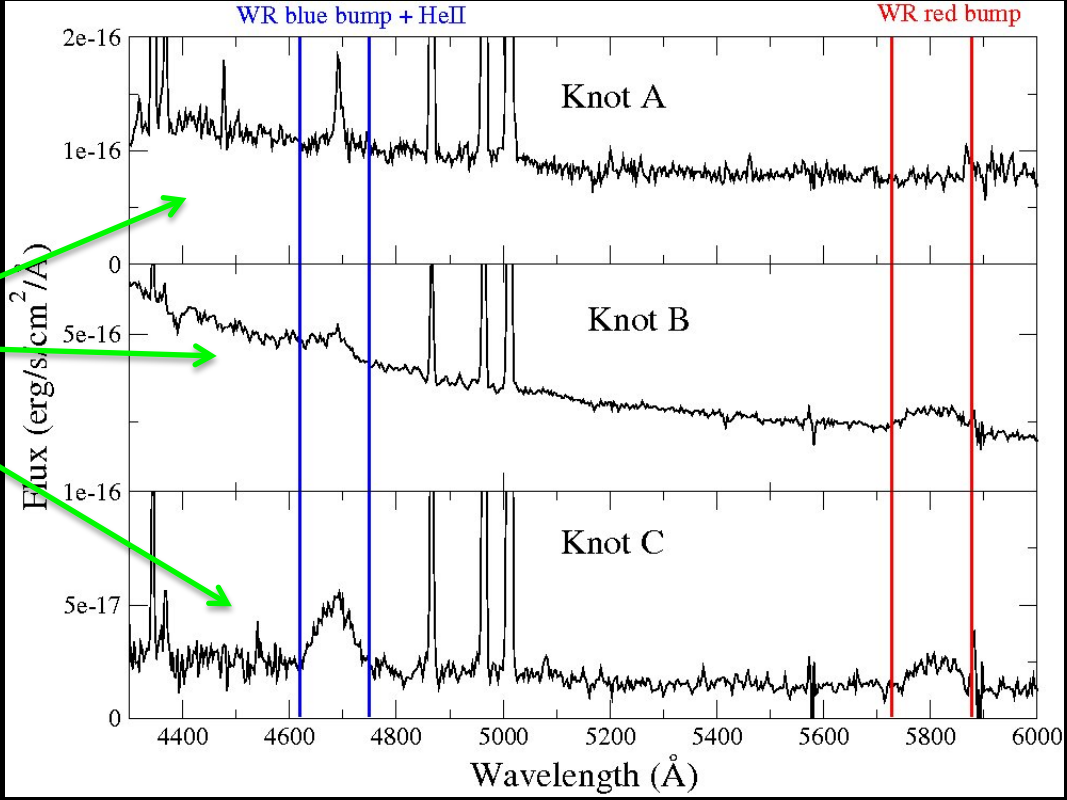
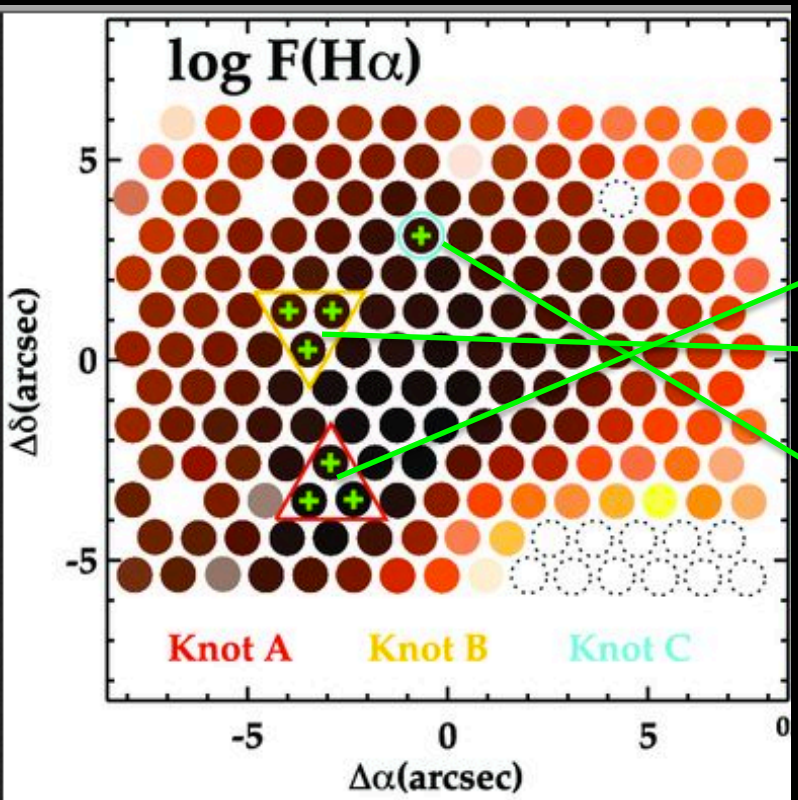
The first IFS study of Mrk 178: the closest metal-poor WR HII galaxy (C. Kehrig et al. 2013)

- For the first time, we study the WR content in Mrk178 beyond its brightest star-forming knot uncovering new WR star clusters



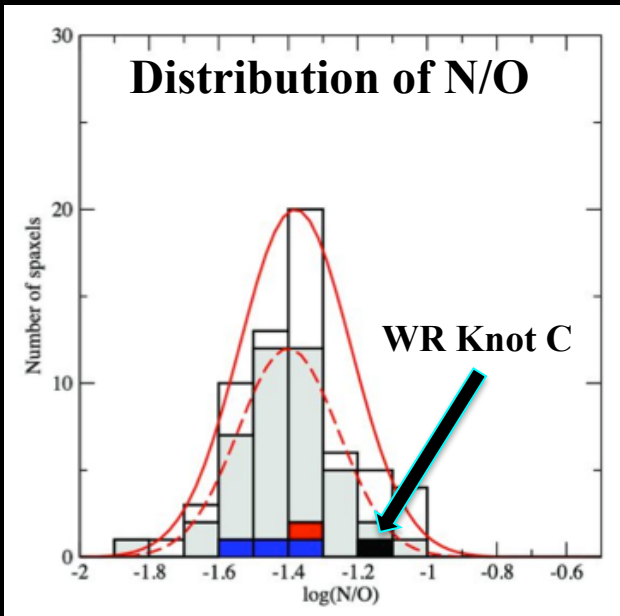
- Kehrig+08;Kehrig+13: the power of IFS in finding WR stars where they were not detected before

■ The strength of the broad WR features and its low metallicity ($\sim 1/10 Z_{\odot}$) make Mrk178 an intriguing object !



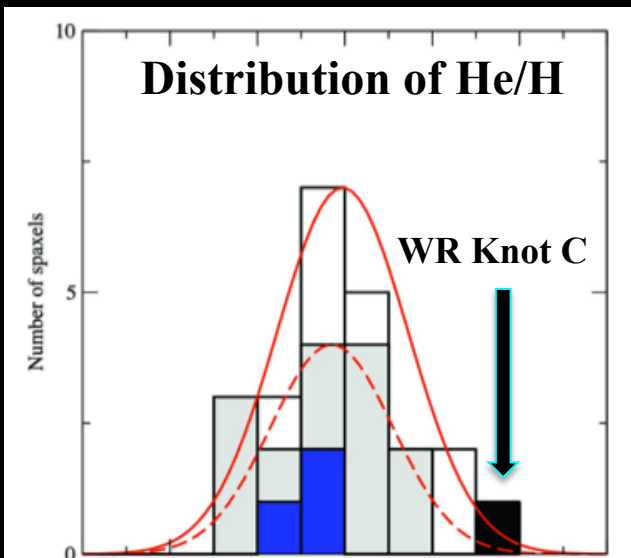
Very few, if any, WR stars are expected to be present in metal-poor objects (e.g. Leitherer et al. 2014)

Spatial correlation between WR stars and chemical abundances



- WR Knot C appears to present a higher N/O

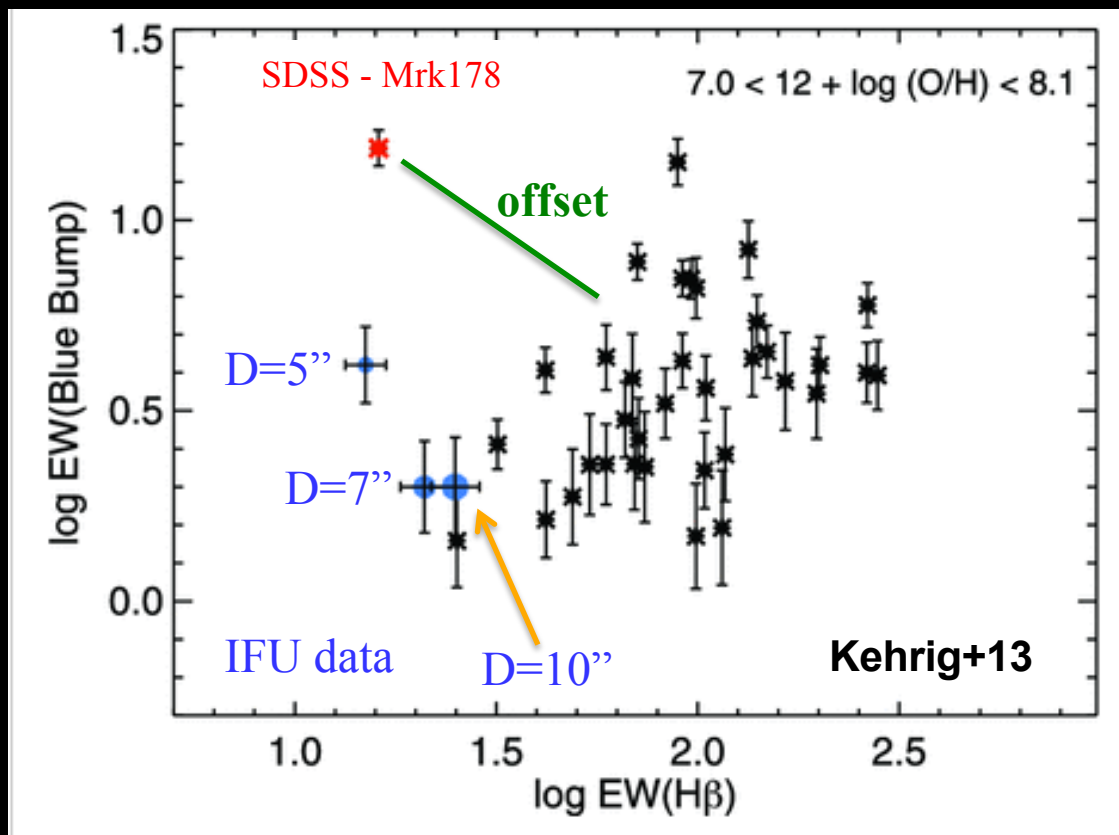
- WR Knot C also shows a higher He/H



- Localized N and He enrichment spatially correlated with WR Knot C (size ~ 20 pc) \rightarrow chemical enrichment is likely produced by WR star winds (see also Perez-Montero, Kehrig+13)

Mrk178: Aperture Effects on the Detection of WR Features & the Power of IFS for Investigating Issues Related to it

Using SDSS spectra and our IFU data: WR features can escape detection depending on the distance of the object and on aperture size → **WR galaxy samples constructed on single fibre/long-slit spectrum basis may be biased !**



the offset is not real and is caused by aperture effects !

■ Mrk178 gets closer to the bulk of metal-poor systems as the aperture size increases

The origin of nebular HeII emission in metal-poor objects

- HeII emission is frequently observed in high-redshift starbursts and it has been used as a probe for popIII stars (the first stars; e.g. Schaerer 2008)
- Excitation source of He⁺ in Mrk178 is still unknown: HeII emission is spatially extended reaching well beyond the locations of the WR stars (see also Kehrig+08; Kehrig+11)

