The UV Properties of SPOGs

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SPOGS

- · Shocked POst-starburst Galaxies Survey (Alatalo et al. 2016)
- Search for galaxies that are currently undergoing rapid transitions from blue cloud late-type spirals to red sequence early-type galaxies with
 - shocks (via ionized gas diagnostics)
 - young stars (via Balmer absorption)
- 1067 total SPOGs

GALEX Data

- FUV: 1516 ± 268 Å
- NUV: 2267 ± 732 Å
- SExtractor Kron aperture photometry

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- 257 detected in NUV and FUV
- 655 detected in NUV only
- 4 detected in FUV only
- 151 not detected in either band



Fig 1. Sample of SPOCs with UV data, compared to early type galaxies (ETGs), late-type galaxies (LTGs), and post-starburst galaxies (PSGs; from Goto 2007). SPOCs appear to be very similar to LTGs in UV with a much larger scatter in UV colors and magnitudes.

Results

- SPOGs occupy a similar region to LTGs (distinct from PSGs) in UV color and magnitude space with a much larger spread in colors and magnitudes (Fig. 1)
- On average SPOGs have a more negative (bluer) FUV-NUV color than LTGs, while PSGs have a more positive (redder) FUV-NUV color than LTGs and SPOGs
- UV strength does not seem to correlate with BPT diagram location (Fig. 3)
 exception in [NII]/Hα diagram (Fig. 3 top): weaker NUV detections seem to be clustered in SF region, while stronger UV detections mostly spread
 - through AGN/LINER and composite regions



Fig 2. Sample two-color UV images of SPOGs, with FUV in blue and NUV in green

Discussior

- SPOGs are a heterogeneous set with various possible origins for the UV emission:
 - starburst (contamination)
 intermediate-aged stars
 - Intermediate-aged state
 AGN
 - AGN
 shocks
- BPT clustering of NUV-weak SPOGs could be showing where low redshift, low metallicity dwarf interlopers are concentrated?



Fig 3. BPT diagrams of SPOGs with UV data (red and blue circles) and without UV data (syan stars) compared to emission line galaxies (ELGs, grey contours), with diagnostic lines from Kewley et al. 2006. It is interesting to note that many of the NUV-weak SPOGs seem to be clustered in the star formation region of the top plot, while NUV-strong SPOGs seem to be spread throughout the AGN and composite regions.