We present an early look analysis of the “Cosmic Skidmark”. Discovered following visual inspection of the Geach, Murphy & Bower (2011) SDSS Stripe 82 cluster catalogue generated by ORCA - an automated cluster algorithm searching for red-sequences (Murphy, Geach & Bower 2012), this z=0.19 1.4L* galaxy appears to have been caught in the rare act of transformation while accreting onto an estimated 10^14-10^15 M* -mass galaxy group (Stott et al. 2012). Pending additional data from ALMA Cycle 2, we show here preliminary analysis of VLT/VIMOS IFU spectroscopy and deep SOAR Adaptive Module (SAM) LGS optical imaging.

The Cosmic Skidmark

From measured equivalent widths, we determine a mean SFR based on three H- and [OII]-derived calculations (using the Kewley et al., 2004 relations). Determining that the SDSS fiber covers the entire galaxy without significantly sampling the background, an SFR surface-density of log SFR=1.9M_\odot yr^{-1} kpc^{-2} is estimated. This is used to determine the required sensitivity our ALMA Cycle 2 observations must reach to trace the H_\alpha gas.

Our Cosmic Skidmark investigation will consist of three datasets. Preliminary wide-field gri-band Magellan IMACS photometry (left) was followed up with deep (7hrs) gri-band SOAR Adaptive Module (SAM; Tokovinin et al. 2004) photometry. This LGS instrument achieved 0.63''(0.57'') median gri-band seeing in a 3''x3'' FOV indicated by the blue square (see also main image). We compliment this with 14hrs of VLT/VIMOS IFU data covering 3837-7430Å rest-frame with a spaxel resolution of 0.67''x0.67'' and a 27''x27'' FOV indicated by the blue square (see also main image).

Finally, we await a 3hr ALMA Band 3 scan within the yellow circle to measure CO(1-0) and CN(1-0) tracers of neutral gas reservoirs potentially fuelling the sites of strong star-formation.

Deep VLT/VIMOS IFU data provides a truly 3D measurement of the target, and permits spectral identification of three key star formation indicators ([OIII],[OII],[H\beta]). We find clear SF evidence throughout the plume, tracing out the dual-tail structure alluded to in the optical imaging. Detailed kinematic analysis will appear in Murphy et al. (2014)