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DEEP WIDE FIELD SEARCH FOR EMISSION LINE GALAXIES WITH THE MPG/ESO 2.2M TELESCOPE

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We present first results from a pilot run of a search for emission line galaxies. To conduct this search we used the Wide Field Imager (WFI) mounted on the 2.2m MPG/ESO telescope in its slitless spectroscopic mode.

We are interested in emission line galaxies, because they include a wide range of phenomena, and are, in many cases, hosts of the most energetic phenomena known in the universe. We concentrate on HII and star forming galaxies and type 2 AGNs. Our objective is to enrich their sample. Our searching method combines a wide field of view, a large collecting area and spectra for all the objects. We are sensitive to [OII]3727, Hβ, [OIII]5007, Hα and [NII]6583 for a range of redshifts of 0.02-0.08 and 0.32-0.44.

We used 5 medium band filters, so as to limit sky background and the overlapping of different orders. We integrated 1 hour for the spectral images and 21m for the direct ones (needed for identification of the objects). While choosing the fields, we tried to avoid crowdedness and bright stars so as to limit the contamination by the other orders. For this pilot run, the fields were chosen to overlap with those of other surveys (LDSS_2 (Glazebrook et al. 1995), COMBO_17 (Wolf et al. 2001) and Autofib (Ellis et al. 1996)).

To extract the spectra we used a modified version of a software developed initially for the Hamburg-ESO Survey (Wisotzki et al. 1996). In Table 1 are given the 3σ limit continuum magnitudes and the limiting line flux sensitivities measured for the spectra for the five filters. So far, the detection of emission lines, which is still in process, has proven to be consistent with the Autofib survey. Figure 1 shows an example of an observed emission line galaxy of redshift 0.064, B magnitude 19.89 and EW for O[II] 41 (Ellis et al. 1996)). The LDSS_2 catalogue has very faint objects, which are below our limiting magnitudes, but still we detect a few, which don't appear in it. We have not yet compared our findings with the Combo_17 ones.

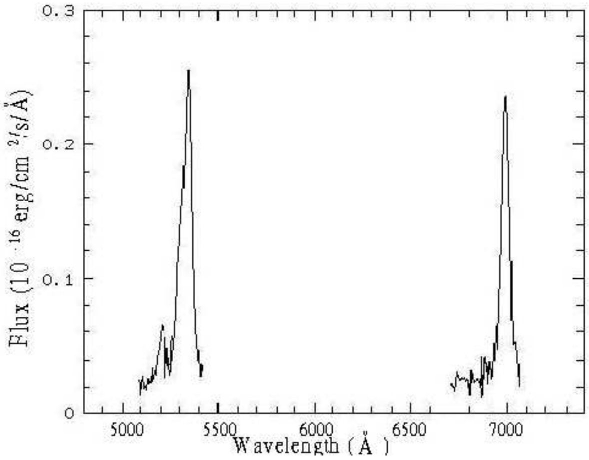

Fig. 1. Example of a detected emission line object (z=0.64, Bmag=19.89, EW for O[II] 41).

TABLE 1

3σ LIMIT CONTINUUM MAGNITUDES AND THE LIMITING LINE FLUX SENSITIVITIES MEASURED FOR THE SPECTRA FOR THE FIVE FILTERS

Filter (Central wl in nm)	3 σ limit continuum magnitude	Limiting line flux sensitivity (10^{-17} erg/cm^2/sec/A)
516	20.5	0.65
531	19.6	0.75
679	19.6	1.00
696	19.1	1.13
914	16.9	1.42

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