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THE EROS AT $z < 1.5$ IN THE GROTH-WESTPHAL FIELD OF THE GOYA SURVEY

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The study of the Extremly Red Objects (EROs), is the importance for setting constraints on the first epoch of massive galaxy formation, for exploring the population of dust reddened starburst and for testing models of galaxy formation in general. They are defined as objects with I-K>4(Vega). The traditional picture identifies the EROs either with passively evolving elliptical galaxies, or with young starburst reddened dust.

Groth-Westphal Strip is one of the fields imaged by GOYA Survey, a large project aimed at mapping 0.5 square degrees of sky at UBVIJK bands, which will be used to characterize samples of high redshify galaxies for spectroscopy with GTC/OSIRIS and EMIR.

We have detected 93 EROs up to K=21 in the Groth-Westphal Strip (113 arcmin2). In Figure 1 we give the EROsdistribution in function ob aparent K magnitude. We have photometric redshift for those EROs detected in at least three filters and seven of they are detected in the seven filters of the survey. In Table 1 we give same of their characteristics for Ho=70, OmegaM=0.3 and OmegaL=0.7.

Based in their morphology, we can classify the EROs in two category: the aisolated-compact (aprox 0.7) and the irregulars (aprox. 0.3). We have stimated the number of interacting objects as 0.08. Roche 2003 find 0.073. These number are consistent with the normal optically selected galaxies interacting companions per galaxy, but low in comparison with the radio-selected faint galaxies, with a much higher interacting fraction. From simulations of color-color distributions using different galaxy populations at z=0 and their evolution with look-back time, using the GALAXED library evolutionary stellar population synthesis models with the new isochrones synthesis code of Bruzual and Charlot(2003), EROs can be evolved Ellipticals or very extinguished star-forming galaxies, but neither metallicity, SFH, properties and dust distributio, nor cosmology can explain the dispersion of data around the evolutionary track of the galaxies. We need to get spectroscopic data with OSIRIS-EMIR and the GTC of this sample of EROs to know the real nature of these objects.

TABLE 1

EROS CHARACTERISTICS

zphot	Age(Gyr)	MB
1.6	4.5	-21.59
0.98	4.5	-20.49
1.2	5.5	-21.05
1.09	0.5	-21.59
1.03	–	-20.86
1.07	4.5	-10.88
1.07	5.5	-20.06

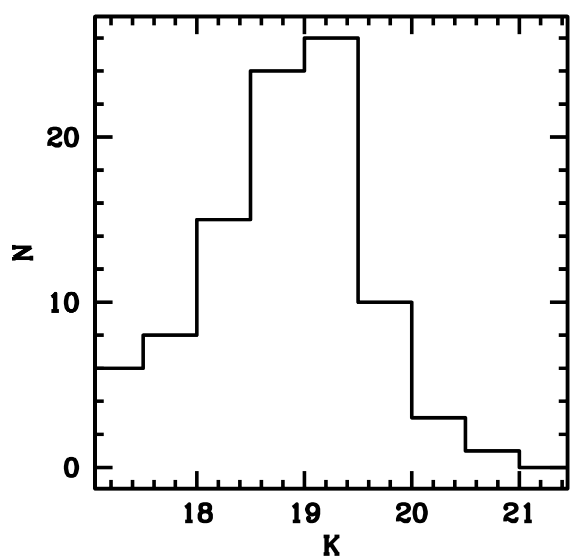

Fig. 1. The K aparent distribution of EROs.

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