

who gave some very important suggestions on NTT instrumental set-ups and observing procedures, and to the La Silla night assistant M. Pizzaro who played an essential role for the success of the observing run.

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# The Giant Arc in EMSS2137-23

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During the three nights devoted to the test of the 'second level remote observing' we observed the cluster EMSS 2137-23 with NTT and EMMI. This cluster is a rather bright EMSS source and has a redshift  $z = 0.32$ . These characteristics make EMSS2137-23 a perfect candidate for the study of the relation between the gas and the galaxian components of a non-local cluster. We wanted to obtain photometry for the galaxies of the clusters in order to build a magnitude limited sample. Details of the observations are found in the article by Franchini et al. in this issue.

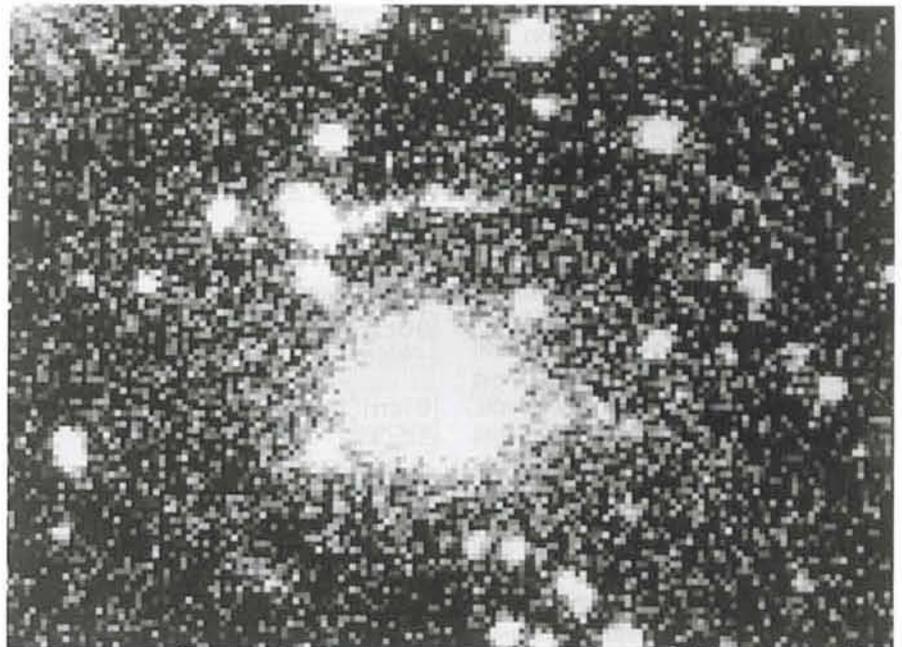
The choice of the cluster was very fortunate, since our images also revealed a giant gravitational arc and several arclets surrounding the cD galaxy of the cluster. However, after our observations had taken place we learned that this arc had already been discovered by Fort et al. in 1991, also with the NTT. (See also the article by G. Soucail in this issue of the *Messenger*.) Our images of the arc are of good quality (see the figure).

Because of our original project on this cluster we also have redshifts for about 50 galaxies in the field (the redshifts are available to us thanks to a collaboration with Dan Fabricant at the Center for Astrophysics). The fact that the arc is in a cluster for which we have such a complete set of optical and X-ray information makes the study of this arc particularly interesting for the determination of the mass distribution within the cluster and for the verification of the model of the lens. Before building the model, in collaboration with Emilio Falco (CfA), deeper images will be needed in order to confirm the several candidate arclets,

which set very important constraints on the model itself.

We moreover note that at least one substructure of the main arc is probably bright enough to be observed spectroscopically (the integrated magnitude of

the feature is  $R = 21.5$  and its surface brightness is  $\geq 5\%$  of the sky). The spectroscopy of the arc would reveal the nature of the lensed object, something that has been possible only in four cases so far.



This image shows the compact cluster of galaxies EMSS2137-23 and the 15 arcsec long "giant arc", just north of the centre of the cluster, as obtained in June 1992 with the ESO 3.5-m New Technology Telescope (NTT) and the ESO Multi-Mode Instrument (EMMI) during remote observations from the Trieste Astronomical Observatory. The frame is a combination of 5 exposures in V, R and I, with a total exposure time of 95 min. The seeing was  $\sim 1.0$  arcsecond. 1 pixel = 0.44 arcsecond. The field measures  $70 \times 52$  arcsec; north is up and east is to the left.