with at least 5 galaxies, to reduce effects of projection factors and poor statistics, we get 6 groups, which we will compare in more detail.

The uncertainty of our M/L estimate depends upon both mass and luminosity errors. As our estimate of L involves correcting factors for incompleteness, it is difficult to estimate an error bar. We therefore concentrate our effort on mass determination, in three directions: we first correct the dispersion velocity for measurement uncertainties, using the precepts of Danese et al. (1980). The result is given in columns 3 and 4 of Table 1.

Then, we make a simulation keeping fixed the positions on the sky of the galaxies in a group, but mixing their velocities and their luminosities, choosing at random 1,000 possibilities among the ($N!^2$) combinations, and computing a new M/L ratio. We than compare it to the observed M/L, and compute the ratio of both numbers. The mean value of the 1,000 trials and their rms dispersion are given in columns 5 and 6 of Table 1. An average value significantly different from one implies that the observed configuration is rather particular. This is the case of the NGC 7582 group, which has the lowest observed M/L ratio. On the other hand, the highest M/L ratio, observed in the NGC 7424 group, is confirmed by our simulation. In fact, the mean ratio M_{sim}/M_{obs} is a measure of the ratio unweighted over weighted estimators of the virial mass.

Finally, we compute the Heisler et al. (1985) estimators of mass, and compare them to the virial mass. The projected mass is computed assuming isotropic orbits and equal masses. The ratios of projected mass, average mass and median mass over unweighted virial mass are given in columns 7, 8 and 9 of Table 1.

6. Conclusions

Several conclusions can be drawn from the results of Table 1, being aware that our statistical basis is very limited.

The low observed M/L ratio of the NGC 7582 group appears to be due to a particular configuration of the galaxies. The unweighted virial mass to luminosity ratio is well within the range of other groups.

The high values of the ratios M_P/M_V^{uw}, M_A/M_V^{uw} and M_M/M_V^{uw} of the NGC 7213 group are probably due to the violation of one underlying hypothesis made to compute these masses, namely that the galaxies in the group have equal masses. Remember that for a group dominated by a massive central member, the projected mass estimator is divided by two.

The ratio M_P/M_V^{uw} appears to be larger than the two other ratios, M_A/M_V^{uw} and M_M/M_V^{uw} : the mean value for projected masses is about 2, while it is about 1.5 for average and median masses. This possibly corresponds to an intermediate situation between equal masses and dominant central galaxy (see previous point). An average coefficient between these two extreme cases would give M_P values lower by a multiplicative factor 0.75, and this would put the three ratios at the same level. However, this common level still corresponds to masses 50% higher than the unweighted virial mass.

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Phase-A Study Launched for the 10/20-μm Camera/ Spectrometer for ESO's VLT

On March 9, 1993 the kick-off meeting for the Phase-A study for the Mid-Infrared Imager/Spectrometer was held at ESO Headquarters. The instrument to be studied will be mounted at the Cassegrain focus of the VLT unit telescope No. 2. It is planned to have this instrument manufactured outside ESO. Shortly summarized, the instrument should provide for direct imaging with various filters and long-slit spectroscopy with $\frac{\lambda}{\Delta\lambda} \approx$ 300, 8,000 and 30,000–50,000 for the 10-μm atmospheric window and some limited access to the 20-μm atmospheric window.

This kick-off meeting was preceded by a study phase inside ESO to define the overall scope of the project and to lay out a potential embodiment of such an instrument[1]. In 1992 ESO sent out a preliminary inquiry to 30 institutions in ESO member states in order to identify and select institutes interested and competent to design and manufacture such an instrument including installation and commissioning at the VLT observatory. As a result, ESO selected DAPNIA/CE-Saclay from France as contractor heading a consortium for a phase-A study. A contract was negotiated and signed in March 1993. The consortium is headed by P.O. Lagage. Partners for the study are SRON, Groningen (T. de Graauw), the Kapteyn Sterrenwacht, Roden (J.W. Pel) both from the Netherlands and the IAS-Orsay, France (R. Gispert).

It is the objective of this study to provide for:

- a preliminary design of the optics, cryogenics, vacuum system and electronics for a system which could fulfil ESO's basic requirements,
- a critical review of the detector situation,
- a performance estimate including the effects of the Earth's atmosphere,
- a predesign of any calibration/test facilities required,
- a detailed cost estimate,
- a description of the scientific objectives the scientists involved in the study expect to address with the instrument in their guaranteed observing time (which they will receive as a compensation for their effort).

In addition the consortium can study alternative technical concepts and scientific operation modes to the extent they deem appropriate.

It is planned that the study will be finished after 18 months. ESO intends thereafter to negotiate a contract with DAPNIA/CE-Saclay for the actual manufacture, installation and commissioning of that instrument.

H. U. KÄUFL, ESO

[1] The result of these internal studies is described in greater detail in H.U. Käufl & B. Delabre, 1992, "Design of a 10/20-μm Camera/Spectrometer for ESO's VLT" in Proc. ESO Conference on Progress in Telescope and Instrumentation Technologies, p. 597, ed. M.-H. Ulrich.