THE ASTRONOMICAL JOURNAL

PUBLISHED BY THE AMERICAN INSTITUTE OF PHYSICS
FOR THE AMERICAN ASTRONOMICAL SOCIETY

VOLUME 69

1964 October ~ No. 1323

NUMBER 8

Abstracts of Papers Presented at the 116th Meeting of the American Astronomical Society, held 24-27 June 1964, at Arizona State College, Flagstaff, Arizona

Subclustering of Galaxies. G. O. ABELL, *University of California, Los Angeles*, J. NEYMAN, AND E. L. SCOTT, *University of California, Berkeley*.—Extending the method introduced by Holmberg to study the hypothesis that large clusters of galaxies contain small subclusters, we have used the counts of Abell to estimate, indirectly, the frequency of subclusters, their spatial extent, and the average number of subcluster members. Seven clusters have been studied.

The method used allows for the fact that a large cluster is concentrated towards its center. Circular rings are drawn about each galaxy in the central area of the cluster and, following Holmberg, the number of galaxies is counted in each ring about each galaxy. In addition, a dense square grid of points is projected on the photograph of the cluster and similar rings are constructed and counts of galaxies made in each ring about each grid point. Clearly, if there is subclustering the counts about galaxy centers will tend to be higher than the counts about point centers. However, the concentration of the cluster alone will produce some excess. Therefore we first estimate the structure of the central part of the cluster and, using this, estimate the structure of the subclusters. The table gives preliminary results for the existence of subclustering, the mean number of companions per galaxy, and the estimated standard deviation σ of the distances of galaxies from their subcluster centers.

Abell No.	Cluster	Existence of subclustering	Mean No. of companions	σ (kpc)
	Virgo	slight	0.05	120
1656	Coma	no	...	...
2199	Around 6166	exists	0.3	110
2151	Hercules	some	0.1	120
151	Haufen A	some	0.05	90
2065	Cor Bor	no	...	...
665		exists	0.5	160

Photometric Investigation of the Galactic Cluster NGC 2281. GONZALO ALCAINO, *Indiana University*.—The results of a photometric investigation in the *UBV* system of the galactic cluster NGC 2281 are presented. Thirty-seven stars were observed photoelectrically, and 121 stars were calibrated photographically.

The distance modulus of 8.4 mag., obtained by using the Johnson evolutionary deviation diagram, yields a distance to the cluster of 480 pc which is in good agreement with the only previous photoelectric work done by Pesch (*Astrophys. J.* **134**, 602, 1960), from which he reported a distance modulus of 8.5 mag. The color-color diagram gives a $E(b-v)$ of 0.10 mag. Using the nuclear time scale formula for the brightest main sequence star an age of the cluster of 5.5×10^8 yr is derived.

The cluster membership from proper motion studies (Vasilevskis, *Astron. J.* **64**, 160, 1959) consists of 55 stars to $V=13$. From a photographic analysis of the neighboring field it is possible to predict that there are few if any members beyond this range of magnitude.

Low-Level Decameter Emissions from Jupiter. J. K. ALEXANDER AND R. G. STONE, *Goddard Space Flight Center*.—Observations of Jupiter with the 26.3 Mc/sec Christiansen-type array of the Clark Lake Radio Observatory have been analyzed with a view towards the determination of how the noise storm morphology might be altered when very weak activity (flux $< 10^{-23}$ W m $^{-2}$ cps $^{-1}$) is included. Analysis of the distribution of activity with system III central meridian longitude shows the same general shape as reported by other workers. Although the occurrence-probability histogram peaks are somewhat broadened in comparison to other less sensitive surveys in this frequency range, the region from 330° to 45° longitude still appears completely