Session 27: 1000–1200 (Room 257)

X-Ray Clusters of Galaxies

01.27.10  Location of Variable X-ray Sources near Southern Clusters of Galaxies using the Scanning Modulation Collimator on HEAO-1. D. SCHWARTZ, M. CONROY, M. GARCIA, E. RALPH, W. ROBERTS, J. SCHWARZ, Harvard-Smithsonian Center for Astrophysics. R. DOXSEY and M. JOHNSTON, Massachusetts Institute of Technology. * - We have analyzed scanned and pointed data from HIS1-1 to search for X-ray locations of 2A 0430-618, 2A 0343-536, and 2A 0460-64. These are interesting since on statistical grounds they would have been associated with clusters of galaxies, yet they are all reported to be variable in their X-ray emission. For 2A 0430-618 we use the 2'' collimator alone to determine intersecting lines of position near the interacting pair of the cluster. Our result indicates a finite extent, and is not inconsistent with the variability since we see it at its minimum intensity of 1 U.P. For 2A 0343-536 a marginal (3σ) detection in both the 30'' and 2'' collimators indicates a point source, H 0630-64 appears in scanning, but not pointing data, therefore indicating variability. We will report on the locations and attempt to identify the point sources.

*Supported by NASA Contracts NAS8-30543 and NAS8-27972.

02.27.09  Solid State Spectrometer Observations of Clusters of Galaxies. R. MUSHTOZY*, R. BECKER**, E. BOLY, S. HOLT, P. SERLEMITSOS, and N. WHITE**. NASA/GSFC - Solid-state spectrometer observations of Coma, Perseus, Centaurus, Abell 1795, A401 and Abell 2199 will be presented. Limits on abundances of Fe, Si and S will be set. Constraints on models of the clusters will be discussed in the light of the high resolution spectral data presently available.

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03.27.10  Extended HI Emission In Stephan's Quintet. S.D. PETERSON, U. C. Berkeley, G.B. SHOSTAK, Univ. of Groningen. The compact group of galaxies known as Stephan's Quintet has long been of interest because of the discrepant redshift of one of its members: the SBc spiral NGC 7320 has a systemic radial velocity of 775 km/s, while the mean value of the other four members is 4650 km/s. Either 1) NGC 7320 is a foreground galaxy, 2) the group has explosive peculiar velocities, or 3) a component of the redshifts is noncosmological. An independent determination of the distances to group members can be used to test the first of these suggestions. Shostak observed the Quintet at 21 cm and investigated the global HI properties of two members, NGC 7320 and NGC 7319; he concluded that NGC 7320 was most likely in the foreground. In 1976, however, a Westerbork map of the region revealed that the HI emission at 6600 km/s, originally thought to be associated with NGC 7319, was actually distributed in an extended cloud offset from the optical galaxies. This observation complicates the distance calculations based on HI parameters. Recent studies at Arecibo confirm the finding and, in addition, reveal another extended cloud at 6000 km/s. The two clouds are apparently well isolated in velocity space. Further observations are indicated, but it is evident that Stephan's Quintet is even more complicated and interesting than originally thought.

This work was partially supported by NASA, operated by Cornell University for the NSF.

04.27.10  X-ray and Optical Observation of cD Galaxies in Poor Clusters. G.A. KRIS, C.R. CANTARES and J.E. McCLINTOCK, H.U. - The Einstein Observatory has observed three cD galaxies in poor clusters, NGC 353, NGC 5 and AWM 4, with the imaging proportional counter. Presently quick look data is available only for NGC 353. Preliminary results for NGC 353 show an extended region of X-ray emission centered on the cD galaxy. The estimated luminosity in the 2-10 keV band is $L_c \sim 2 \times 10^{44}$ erg/sec, comparable to other X-ray emitting clusters of galaxies. All three cD galaxies were observed with the 1.2m telescope at Lick Observatory using the Mark II photon counting spectrometer. The spectra show normal galactic continua and absorption lines. Redshifts were determined for the cD galaxies and two other galaxies in each cluster. Preliminary results are consistent with all the cD galaxies being members of their respective clusters, including NGC 353, whose membership was in doubt. Models for gas distribution and X-ray emission will be discussed.

05.27.09  X-ray Observations of the Virgo Cluster of Galaxies with the EINSTEIN Observatory. W. PORMAN, W. LILLER, C. JONES, J. BECHTOLD, J. SCHWARZ, D. FABRICANT, Harvard-Smithsonian Center for Astrophysics, A. FABIAN, Institute for Astronomy, England. - We have begun a survey