

NO BACKSIDE INFALL INTO THE GREAT ATTRACTOR

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ABSTRACT We have recently completed a survey of the peculiar velocities of 1355 southern spiral galaxies. The Tully - Fisher relation was used to estimate the distances to the spirals. The photometry was done in the I-band using CCDs on the 1m telescope and the Anglo-Australian Telescope at Siding Spring Observatory. The rotational velocities were measured from 1042 H-alpha rotation curves obtained with the 2.3m telescope at SSO and 609 H I profiles obtained with the Parkes radio telescope.

The most important result of these measurements is that we do not detect backside infall into the Great Attractor, rather we find bulk motions of 600km/s on scales of $80h^{-1}$ Mpc in the direction $l = 310^\circ$, $b = 15^\circ$. Willick recently found bulk motions of about this magnitude and direction from his survey of the peculiar velocities of spirals in the direction of Perseus - Pisces. When combined with our result this implies bulk motions of about 500km/s over scales of $150h^{-1}$ Mpc.

1. These bulk motions falsify the standard CDM models.
2. The Great Attractor does not exist.
3. If gravity is the driving force, it appears that light does not trace mass on large scales as the peculiar velocities predicted by the IRAS density maps do not show these bulk flows.
4. It is doubtful if large concentrations of Dark Matter can be responsible for these flows because of the smoothness of the CMB. Although late phase transitions may be one mechanism by which seed structure can be introduced without effecting the CMB.

The far-reaching implications of these conclusions raises the question, "Does the CMB define an absolute rest frame?"