

### **EXERCISE: Superclusters ADS/NED/cosmo**

ADS: Find a (ref.) paper of Einasto with a catalog of superclusters, made using Abell catalog....you will find a TAB.1 with many SCs!!! Look in the table for the Shapley SC, Abell 3558 (one of the most important clusters)

NED: find its redshift

Cosmo/NedWright: find its luminosity and angular distance. Scale: how many Mpc is an arcmin at this  $z$ ?  $1\text{Mpc} = ?? \text{ arcmin}$ ?

NED: Cluster sizes are about 1-3 Mpc. Look for clusters around A3558 (within 20Mpc).

Save the NED table/results. Look at your table and be ready to discuss it with me and other students.

You will find another supercluster, which? Is it strange or not?

Think a way to separate the two supersclusters!!! Suggestion: the velocity dispersion of gals inside a cluster is  $\sigma_V \sim 1000 \text{ km/s}$ , that is  $3\sigma_V$  contains the whole cluster....and  $M$  scales with  $\sigma_V^3$ . Now, assume that  $\text{Mass}_{SC} \sim 10 \text{ Mass}_C$ , so SC  $\sigma_V$  should be about...so you will use NED with another requirement to obtain only the Shapley SC...

Save the NED table/results. Look at your table and be ready to discuss it with me and other students.

THINK ABOUT: is a difference between the coordinates of Einasto and those on NED? Why?

Is only due to a better determination of the positions of the superclusters or to something other?

### **EXERCISE: FOSSIL GROUPS ADS/NED/cosmo**

ADS: find the IV paper of the "Fossil group origins" serie, look for sample table (1) and select 3 systems. Fossil systems have a very luminous brightest galaxy ( $\Delta M(12) \Rightarrow 2 \text{ mag}$ ) and "extended" X-ray emission (here from Rosat telescope, ROSAT All-Sky Survey - RASS survey).

NED: for each system, 1. look if this system is already known with another name; 2. look if the X-ray emission might be contaminated by an AGN (note the X-ray emission of a cluster comes from  $< \sim 0.5 \text{ Mpc}$ . Suggestion: look for 5-10max arcmin around the group center.

Look at your tables (one for each system) and be ready to discuss it with me and other students.

THINK ABOUT: is it fine to use a 5-10arcmin scale or you can make something of more appropriate? For 1. think what you know about clusters and cosmology...For 2. think about the concept of "extended source" and about the possibility that the group/cluster does not exist...