

AST 250 – Spring 2019
Homework Due: Friday April 12th

35. (a) Observations of a galaxy on the far side of the Hercules Supercluster indicate that the CaII “H and K” spectral lines are observed at $\lambda = 415.9$ nm and 412.24 nm. The rest wavelengths of the CaII H and K lines are $\lambda = 396.85$ nm and 393.36 nm. What is the distance of this galaxy? Give your answer in Mpc.
- (b) Peculiar velocities are typically on the order of $\sim 0.1\%$ of the speed of light. What uncertainty does this introduce to the distance (give answer in Mpc)? For this galaxy, can you ignore peculiar velocities compared to the Hubble flow?
- (c) If the galaxy spans $10''$ on the sky, what physical size does that angle correspond to within the galaxy? Give you answer in kpc.



Figure 1: The Hercules Cluster of Galaxies (Abel 2151)