Seminarium Astrofizyczne

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The influence of galaxy environment on morphology

The environment that a galaxy resides in can influence its physical properties. In denser environments, such as galaxy groups, the close proximity of other galaxies can result in the material in a galaxy being pushed or pulled around. This interaction in groups is known to cause environmental quenching, were the star-formation rate of galaxies is reduced due to their environment. It is also often reported that group galaxies are typically more elliptical than field galaxies, again a result of the interactions. A result of this is there being a greater fraction of elliptical galaxies in groups compared to the field.

Evidently being in or out of a galaxy group can influence galaxy morphology. However, understanding how galaxy groups influence the galaxy morphology beyond simple elliptical or spiral classification has not been closely studied. This talk will discuss how a galaxy's environment influences its morphology using a number of different morphological parameters, such as concentration, asymmetry or the Gini coefficient. To more accurately compare the field to groups, these parameters for each galaxy will be placed onto the stellar-mass – star-formation rate plane. This allows a comparison between different environments that is independent of these two physical properties of a galaxy.

To do this, simple models of the different morphological parameters in the stellar-mass – star-formation rate plane are generated and will be discussed. From these simple models, we can explore exactly how the different environments influence the morphologies of the galaxies that live within them. We will also compare different morphological parameters that should describe similar properties of a galaxy, exploring if they show similar trends or if these parameters are not as similar as we expect.

Serdecznie zapraszam,
Agnieszka Majczyna