

Imagine that you were an alien who landed on Earth for one (solar) day with a secret mission. You have to report to your boss how people on Earth change in time. After a few hours of tracking a single individual, you realize that one day is not enough to observe any change. You are about to give up, but suddenly you come up with the perfect idea. On the basis of the number of different people with different traits - height, weight, hair color and amount etc. you will be able to infer information on the life of a single human. Later you can go back to your boss and report that you saw individuals small, medium, large. You deduced that they grow relatively quickly, because the small ones are relatively rare. Then they stop growing in height, but their weight or hair colour change etc.



Figure 1: People on the street. <http://www.irishtimes.com/>

Astronomers study the evolution and fate of stars in the similar way to the alien above. The time scale of stellar evolution of the order of billion of years makes human life is too short to observe evolution of individual stars. However, using observations of thousands or millions of stars we can infer how stars evolve, which ones are more or less popular, how much time they spend on the consecutive evolutionary steps. Have you ever heard about star clusters? They belong to one of the most favourite astronomers' tools to study stellar evolution, since they consist of stars born at the same time and located in the same distance from Earth.



Figure 2: Pleiades open cluster. NASA, ESA, AURA/Caltech, Palomar Observatory.

Stellar evolution is not equally slow throughout all the evolutionary steps of the star. In one exceptional case a few years is enough to follow the evolution of a star. Central stars of planetary nebulae make this exception. They are very rare - we know only a few thousand of these colorful objects spreaded throughout Milky Way. Their low number stems from their fast evolution. I will follow their evolution by comparing my new observations from South African Astronomical Observatory and European Southern Observatory, Chile, to the archival observations made three decades ago. I will determine how fast and in which direction they evolve.



Figure 3: La Silla observatory, Chile.