

## **Abstract**

Studies of the dynamics of galaxies and clusters of galaxies show that the majority of cosmic matter is in the form of Dark Matter (DM). There are three main techniques for detecting the gravitational influence of dark matter. For the Large scales, studying Cosmic Microwave Background (CMB) reveals that the density of the universe is in the order of critical density. Comparing it with the luminous matter shows that more than 99% of the mass on large scales, Gravitational Lensing (weak and strong lensing) is a powerful tool to detect the amount of dark matter and the result of observations also shows that the major mass of clusters of galaxies is DM. In the small scales (i.e scale of galaxies), studying dynamics of disks indicates that more than 90% of the mass on small scales also can be observed by using standard candles, so-called supernovae Type Ia. Using apparent magnitude, red-shift of a supernovae type Ia reveals that there should be dark energy in the framework of FRW model. The nature of dark matter- energy is the important subject of debates of cosmologists in recent years.