U23c **The Study of Dark-Matter by Clusters of galaxies**

Murat Hudaverdi (YTU), E. Nihal Ercan (BOUN), Ferhat Fikri Ozeren (EUN)

Dark matter and dark energy are the greatest unsolved problems in science. About 95 % of the universe is composed by a unseen form of matter. Its nature, distribution and behavior are not fully known. X-ray astrophysicscontribution to this mysterious research topic is primarily through the studies of galaxy clusters. They are the largest scales of organized matter in the Universe. Galaxy clusters are expected to have a nearly cosmic mix of baryonic and dark matter, (f_{gas}= M_{gas}/M_{tot} $\sim$ Ω_b/Ω_M), because their mass is orders of magnitude higher than the Jeans mass scale ($\sim 10^{15}$ M$\odot$), and hence baryons and dark matter are not separated as the clusters grow from large-scale structures. In this work we estimated, R_{500}, M_{gas}, M_{tot} and the fraction f_{gas} for several clusters of galaxies by using the archival X-ray data of Chandra, XMM-Newton or Suzaku observatories. In order to guarantee sufficient photon counts we selected the sources with long exposure (>45 ksec). Preliminary results (A2550=0.147±0.032, A2554=0.163±0.024, A3562=0.188±0.042, etc.) confirm a correlation between WMAP result of Ω_b/Ω_M=0.167 within 90% confidence range. Based on only X-ray observational analysis, our findings confirm the density and composition of the universe proposed by WMAP.