



Contribution ID: 271 Contribution code: S02-AA-100

Type: Oral presentation (virtual)

Changes introduced by Cooling Flow (CF) effect, on Sunyaev-Zaldovich (S-Z) inverse Compton effect, profiling the hot electronic plasma on Clusters of Galaxies.

Tuesday, 30 August 2022 17:15 (15 minutes)

S-Z is an effect, which consists in the inverse Compton effect of the hot electronic gas interacting with Cosmic Microwave Background (CMB) photons passing through Intra Cluster Medium (ICM). Building more accurate profiles for temperature and density of hot electronic gas, concentrated in the center of clusters of galaxies, is a constant problem in survey of Sunyaev Zel'dovich effect (SZ). So far, the Isothermal model is used for temperature profiling in the calculation of the inverse Compton effect, but based on the recent improved observations from satellites, which showed in some clusters the hot electronic gas presents a feature, called Cooling Flow (CF), temperatures in this model differs towards the edges of the Clusters of Galaxies, leading to a change on the Compton parameter in comparison with Isothermal model. In this paper are processed data, provided by 3 X-ray satellites (Chandra, XMM-Newton, ASCA). The X-ray analysis is based on two models for the electron density and temperature profile. A sample clusters of galaxies are analyzed, more than half of them show this feature, and by building the temperature profiles using CF model, the differences on the Compton parameter, are 10-50% in comparison with Isothermal model. Therefore to increase the accuracy of evaluation of the Compton parameter, we should take into account the change of the electronic gas temperature, change that affect changes in both, CMB spectrum and temperature, from SZ effect

Primary author: ÇAÇA, Enkelejd (Department of Physics, Faculty of Mathematical Engineering and Physical Engineering, Polytechnic Universit of Tirana)

Co-authors: Prof. XHAKO, Dafina (Department of Physics, Faculty of Mathematical Engineering and Physical Engineering, Polytechnic Universit of Tirana); Dr ZEQRILLARI, Rudina (Department of physic Faculty of Natural Sciences, University of Tirana, 1000, Tirana, Albania.)

Presenter: ÇAÇA, Enkelejd (Department of Physics, Faculty of Mathematical Engineering and Physical Engineering, Polytechnic Universit of Tirana)

Session Classification: S02 Astronomy and Astrophysics

Track Classification: Scientific Sections: S02 Astronomy and Astrophysics