



Contribution ID: 20

Type: **Tutorial lecture**

Dark Matter search in space

Cosmological observations are giving us a coherent picture of the Universe dominated by dark matter and dark energy. There are increasingly convincing evidences that non-baryonic dark matter is the building block of all structures in the Universe. The favorite candidates for the non-baryonic component are neutral weakly interacting massive particles (WIMP's) with a mass in the range between 10's GeV to TeV. The each other annihilation of these particles results in the symmetric production of particles and antiparticles, as protons and antiprotons, electrons and positrons, neutrinos and antineutrinos as well as gammas. An extensive search of these signals of dark matter, started many years ago by experiments on board stratospheric balloons, is now conducted in space by the magnetic spectrometers PAMELA and AMS-02 and the gamma telescope Fermi. The main space techniques in particle detection and the most relevant results will be presented.

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