

High energy positron detection via synchrotron radiation in magnetosphere

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The space experiment SONYA is designed to detect cosmic positrons and electrons through their synchrotron x-ray emission in the Earth magnetic field. The proposed instrument can identify the sign and determine the energy of TeV electrons and positrons. Modern magnetic spectrometers aren't able to measure positrons above several hundreds GeV. Simulation of the instrument were performed. Advantages of the method are high proton background rejection and increase of effective area of the instrument with energy. As estimation shows the proposed experiment with size about 1m^2 will detect several tens of TeV positrons per year

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