THE (AN)ISOTROPY OF UHECR FROM LUMINOUS INFRARED GALAXIES

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Ultra High Energy (UHE) particles coming from discrete extragalactic sources are potential candidates for EAS events above a few tens of EeV. Galaxies with huge infrared luminosity are possible sites of UHECR acceleration (starburst's superwinds,colliding galaxies, AGNs). Using The PSCz Catalog of IRAS galaxies we calculate a large scale anisotropy of UHE protons originated in the population of Luminous Infrared Galaxies from the local universe. We take into account small angle particle scattering in weak irregular extragalactic magnetic fields, as well as deflection by regular Galactic field.
We give analitical formulae for deflection angles and time delays with included energy losses on CMB. The hypotheses of the anisotropic or isotropic distributions of the expe-rimental data above 40 EeV (e.g. from AGASA) are checked, using Smirnov-Cramer-von Mises free of binning test. The famous AGASA UHE triple event is found to be well correlated on the sky with the brightest extragalactic infrared source within 70 Mpc - merger galaxies ARP 299 (NGC 3690+IC 694).