

Possible implications of the differences between the Auger and TA data

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The UHECR data collected by the TA and Auger collaborations show some interesting differences in the spectrum as well as in possible anisotropies. Assuming that they do not simply reflect some statistical and/or systematic uncertainties, but on the contrary capture distinct features associated with different regions in the sky, it is interesting to investigate the implications of such differences to set constraints on the underlying astrophysical scenarios. We show the results of a series of detailed Monte-Carlo simulations, which allowed us to explore the cosmic variance and build a large number of possible sky maps corresponding to different astrophysical models. We find that the presence of a hotspot potentially compatible with the TA data is obtained with an occurrence probability of the order of a few percent for some scenarios, and identify the associated constraints on the model parameters.

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