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Ultra-high energy extragalactic neutrinos interacting with ultra-light dark matter

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Abstract content

We study a possible suppression of the extragalactic neutrino flux due to a nonstandard interaction during neutrino propagation. In particular, we study neutrino interaction with an ultra-light scalar field dark matter. We show that the extragalactic neutrino flux may be suppressed by such an interaction, leading to a new mechanism to reduce the ultra-high energy neutrino flux. We conclude that care must be taken when explaining limits on the neutrino flux through source acceleration mechanisms only, since there could be other mechanisms for the reduction of the neutrino flux.

Summary

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