Abstract Submitted
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**Cosmic Rays and Neutrinos as Complementary Probes of Ultra-High Energy Astrophysics**[1] AMY CONNOLLY, The Ohio State University, NATHAN GRIFFITH, Dremio Inc., Los Altos, California, SHUNSAKU HORIUCHI, Virginia Tech — Neutrino in ultra-high energy regime will be unique messengers to the astrophysics sources of the highest energy cosmic rays. They are the only particles that can be observed above the GZK threshold at cosmic distances, of order a Gpc, and this means that only neutrinos will be sensitive to any redshift-dependence of the source properties at the highest energies. Using CRPropa 2.0, we have investigated which properties of the source spectra are best probed by cosmic rays and in what energy range, which properties can only be measured with neutrinos, and the implications of redshift-dependent properties on both fits to cosmic ray day and predictions of neutrino flux spectra.

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