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Searching for the neutrino flux from cosmic GZK interactions

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There is expected to be an observable flux of ultra-high energy neutrinos from interactions between the highest energy cosmic rays and cosmic microwave background photons through what is known as the GZK process. Once observed, this GZK-induced neutrino flux will be the key to answering questions about the highest energy universe at cosmic distances that cannot be probed with cosmic rays. I will review the status of searches for ultra-high energy neutrinos and what the results mean for constraining the GZK-induced neutrino flux. I will then outline the implications of current and future constraints on neutrino flux models for understanding the nature of the highest energy astrophysics sources as well as fundamental physics at extreme energy and distance scales.