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Inferring astrophysical neutrino sources from the Glashow resonance

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Using the Glashow resonance candidate event recently identified by IceCube we infer the ultrahigh energy astrophysical neutrino source. The Glashow resonance is a valuable probe to identify the source of astrophysical neutrinos because it distinguishes $\bar{\nu}_e$ from ν_e. With the available experimental information we set a constraint on the $\bar{\nu}_e$ fraction of astrophysical neutrinos. We find that the μ-damped pγ source is excluded at about 2σ confidence level and that there is a weak preference for the pp source. Next generation experiments will be able to distinguish between ideal pp and pγ sources with a high significance assuming a single power-law neutrino spectrum.

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