A time-independent search for neutrinos from galaxy clusters with IceCube

Mehr Un Nisa[1], Andrew Ludwig[1] for the IceCube Collaboration

[1] Michigan State University

ICRC 2021

1 Executive Summary

This work presents an IceCube search for neutrinos from galaxy clusters, some of the most massive gravitationally bound large-scale structures in the universe. We find no evidence of significant neutrino emission from the galaxy clusters detected via the SZ effect in the Planck survey, challenging certain scenarios of neutrino production in such objects following CR confinement and interactions in the ICM. Depending on the assumed weighting scheme and spectral index, we constrain the contribution of galaxy clusters, with masses between 10^{14} $M_\odot$ and 10^{15} $M_\odot$ at a redshift between 0.01 and 2, to the diffuse neutrino flux between 4% and 67% at 100 TeV.