

Abstract Submitted
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Mini Z' Burst from Relic Supernova Neutrinos and Late Neutrino Masses INA SARCEVIC, University of Arizona — In models in which neutrino mass is generated by the symmetry breaking at low scales, additional light bosons are generically present. We show that the interaction between diffuse relic supernova neutrinos (RSN) and the cosmic background neutrinos, via exchange of these light scalars, can result in a dramatic change of the SN neutrino flux. Measurement of this effect with current or future experiments can provide a spectacular direct evidence for the low scale models. We demonstrate how the observation of neutrinos from SN1987A constrains the symmetry breaking scale of the above models. We also discuss how current and future experiments may confirm or further constrain the above models, either by detecting the “accumulative resonance” that diffuse RSN go through or via a large suppression of the flux of neutrinos from nearby $\lesssim O(Mpc)SNbursts$.

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