

New limits on heavy ALPs: an analysis of SN 1987A, again

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We determine limits from SN 1987A on massive axion-like particles with masses in the keV-GeV range and that couple exclusively to two photons. The signal we use to determine these limits arises from the decay of the heavy particles on their way to Earth resulting in observable gamma-rays. We discuss the non-trivial time and angular distributions of such a signal. Looking into the future we also estimate the possible improvements if the red supergiant Betelgeuse explodes in a supernovae event.

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