

Linking axion-like dark matter to neutrino masses

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We present a framework linking axion-like particles (ALPs) to neutrino masses through the minimal inverse seesaw (ISS) mechanism in order to explain the dark matter (DM) puzzle. Specifically, we explore three minimal ISS cases where mass scales are generated through gravity induced operators involving a scalar field hosting ALP. In all of these cases, we find gravity stable models providing the observed DM relic density and, simultaneously, consistent with the phenomenology of neutrinos and ALPs. Remarkably, in one of the ISS cases, the DM can be made of ALPs and sterile neutrinos. Furthermore, other considered ISS cases have ALPs with parameters inside regions to be explored by proposed ALP experiments.