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Search for dark matter in the form of axion-like particles and hidden photons in the XMASS detector

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XMASS is an experiment to search for dark matter (DM) using a single-phase liquid-xenon scintillator at the Kamioka Observatory in Japan which is located 2700 m.w.e. underground. With its low background environment, the XMASS detector has sensitivity not only for standard WIMPs which produce a xenon nuclear recoil in the detector, but also for various types of DM, for example, DM inducing an electron recoil. In this talk, we will report results of searches for axion-like particles and hidden photons as candidates for cold DM. These bosons are expected to induce an electron recoil through an interaction analogous to photoelectric effect with a xenon atom. Analysing 800 live-days of XMASS data with 327 kg liquid xenon in the fiducial volume, we set most stringent upper limits on the coupling constant g_{Ae} of axion-like particles and the parameter for kinetic mixing α'/α of hidden photons in the mass range from 40 to 120 keV/c^2.

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